**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

**AIR AND RADIATION ADMINISTRATION**
**APPLICATION FOR A PERMIT TO CONSTRUCT**

**DOCKET #03-25**

COMPANY: University of Maryland

LOCATION: 7743 Baltimore Ave., College Park, MD 20740

APPLICATION: Permanent power and steam generating units.

| ITEM | DESCRIPTION |
|---|---|
| 1 | Notice of Application and Informational Meeting |
| 2 | Environmental Justice (EJ) Information - EJ Fact Sheet |
| 3 | Permit to Construct Application – Project Overview, Emission Calculations, Forms 11, 44, and 42, EJ Analysis and MDE EJ Score and Screening Report, Process Flow Diagram, Site Plan, Vendor Specifications, Workers Compensation Coverage |
| 4 | CPCN Exemption from the Public Service Commission |
| 5 | Zoning Exemption Documents |
| 6 | Privilege Log |

**DEPARTMENT OF THE ENVIRONMENT**
**AIR AND RADIATION ADMINISTRATION**

**NOTICE OF APPLICATION AND INFORMATIONAL MEETING**

The Maryland Department of the Environment, Air and Radiation Administration (ARA) received a permit-to-construct application from the University of Maryland on January 15, 2025 for the installation of permanent power and steam generating units. The proposed installation will be located at 7743 Baltimore Ave, College Park, MD 20740.

In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the project is located using the MDE EJ Screening Tool. The EJ Score, expressed as a statewide percentile, was shown to be 82 which the Department has verified. This score considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities. Multiple environmental health indicators are used to identify overburdened communities.

Copies of the application, the MDE EJ Screening Tool Report (which includes the score), and other supporting documents are available for public inspection on the Department's website at https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/index.aspx (click on Docket Number 03-25). Any applicant-provided information regarding a description of the environmental and socioeconomic indicators contributing to that EJ score can also be found at the listed website. Such information has not yet been reviewed by the Department. A review of the submitted information will be conducted when the Department undertakes its technical review of all documents included in the application.

Pursuant to the Environment Article, Section 1-603, Annotated Code of Maryland, an informational meeting has been scheduled so that citizens can discuss the application and the permit review process with the applicant and the Department.

An Informational Meeting will be held on April 10, 2025 from 6:30-8:00 PM at the University of Maryland, Seneca Building, Room 0110, 4716 Pontiac Street, College Park, Maryland 20740.

The Department will provide an interpreter for deaf and hearing-impaired persons provided that a request is made for such service at least ten (10) days prior to the meeting.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

Maryland
Department of
the Environment

# The Applicant's Guide to Environmental Justice and Permitting

## What You Need to Know

This fact sheet is designed to provide guidance to applicants on incorporating environmental justice screening requirements pursuant to House Bill 1200, effective October 1, 2022.

## What is Environmental Justice?

The concept behind the term environmental justice (EJ) is that regardless of race, color, national origin, or income, all Maryland residents and communities should have an equal opportunity to enjoy an enhanced quality of life. How to assess whether equal protection is being applied is the challenge.

Communities surrounded by a disproportionate number of polluting facilities puts residents at a higher risk for health problems from environmental exposures. It is important that residents who may be adversely affected by a proposed source be aware of the current environmental issues in their community in order to have meaningful involvement in the permitting process. Resources may be available from government and private entities to ensure that community health is not negatively impacted by a new source located in the community.

Extensive research has documented that health disparities exist between demographic groups in the United States, such as differences in mortality and morbidity associated with factors that include race/ethnicity, income, and educational attainment. House Bill 1200 adds to MDE's work incorporating diversity, equity and inclusion into our mission to help overburdened and underserved communities with environmental issues.

## What is House Bill 1200 and what does it require?

Effective October 1, 2022, House Bill 1200 requires a person applying for a permit from the Department under §1-601 of the Environment Article of the Annotated Code of Maryland or any permit requiring public notice and participation to include in the application an EJ Score for the census tract where the applicant is seeking the permit; requiring the Department, on receiving a certain permit application to review the EJ Score; and requiring notices to include information related to EJ Scores and generally relating to environmental permits and environmental justice screenings.

## What is a "Maryland EJ Tool"?

The term "Maryland EJ Tool" means a publicly available state mapping tool that allows users to: (1) explore layers of environmental justice concern; (2) determine an overall EJ score for census tracts in the state; and (3) view additional context layers relevant to an area. The MDE EJ Screening Tool is considered a Maryland EJ Tool.

## What is an "EJ Score"?

The term "EJ Score" means an overall evaluation of an area's environment and environmental justice indicators, as defined by MDE in regulation, including: (1) pollution burden exposure; (2) pollution burden environmental effects; (3) sensitive populations; and (4) socioeconomic factors.

The MDE EJ Screening Tool considers three demographic indicators, minority population above 50%, poverty rate above 25% and limited English proficiency above 15%, to identify underserved communities, and multiple environmental health indicators to identify overburdened communities. The tool uses these indicators to calculate a

Final EJ Score Percentile, statewide. It is that score, linked to the census tract where the project is to be located, that needs to be reported to MDE as part of your permit application.

## What does the application require?

The link for the MDE EJ Screening Tool is located on the Department's website, www.mde.maryland.gov. Click on the Environmental Justice header at the top of the Department's home page, then select EJ Screening Tool from the menu on the left. Click on Launch the EJ Screening Tool. After you open the tool, click okay on the opening screen. At the top right, please click the first button for the MDE Screening Report. Input the address of the proposed installation in the address bar. Click on the Report button. Once the report has been generated select the print icon and save it in a .pdf format.

The applicant needs to include the MDE Screening Report with the EJ Score from the MDE EJ Screening Tool as part of the permit application upon submission. An application will not be considered complete without the report.

The applicant is encouraged to provide the Department with a discussion about the environmental exposures in the community. This will provide pertinent information about how the applicant should proceed with engaging with the community. Residents of a community with a high indicator score and a high degree of environmental exposure should be afforded broader opportunities to participate in the permit process and understand the impacts a project seeking permit approval may have on them.

## Questions

For air quality permits, please call 410-537-3230.
For water permits, please call 410-537-4145.
For land permits pertaining to Solid Waste, please call 410-537-3098. For land permits pertaining to Oil Control, please call 410-537-3483.
For land permits pertaining to Animal Feeding Operations, please call 410-537-4423.
For land permits pertaining to Biosolids, please call 410-537-3403.

# Application for an Air Permit to Construct

## University of Maryland

## College Park

## Central Energy Plant

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# 1. Introduction

The University of Maryland (UMD) is located along Baltimore Avenue in Prince George's County, Maryland. The College Park campus is an academic institution that has utility needs (steam, electricity, chilled water, etc.).

Utility needs of the campus (including heating and cooling for campus housing, offices, and laboratories) are currently provided by two combustion turbines equipped with duct burners (EU #001-7 and EU #001-8) and several boilers (EU #001-2, EU #001-4, and EU #001-9). All these power and steam generation sources are collectively referred to as the Central Energy Plant (henceforth referred to as CEP). The sources at the CEP are authorized under Title V operating permit No. 24-033-0010 issued on December 13, 2022 by the Maryland Department of the Environment (MDE). The standard industrial classification (SIC) code for the campus is 8221.

On December 3, 2024, UMD was issued an updated Air Quality Permit to Construct Number 033-0010-5-1709 for the installation of five (5), natural gas-fired[1] mobile boilers each rated at 99.9 million British thermal units per hour (MMBtu/hr) for interim service while the campus plans and executes a permanent solution to meet its power and steam needs (the "interim boiler permit").

As part of the NextGen project (the "project") and by means of this application, UMD is applying for an air quality Permit to Construct of the following permanent power and steam generating emission units at the campus:

- Two (2) new 182.09 MMBtu/hr natural gas-fired boilers, each equipped with an integrated burner capable of being turned down to fire at 9.25 MMBtu/hr (referred to as the "pilot mode" of operation);
- One (1) new, 171.9 MMBtu/hr [16.5 megawatts electrical (MWe)] natural gas-fired combustion turbine, equipped with a heat recovery steam generator (HRSG) and supplemental 92 MMBtu/hr duct burner (natural gas-fired); and
- One (1) new 2,346 horsepower (hp) [1,750 kilowatts mechanical (kWm)] ultra-low sulfur diesel (ULSD) fueled generator proposed for emergency use.[2]

The proposed new boilers and combustion turbine are each being permitted to combust up to 48 hours per year of ultra-low sulfur fuel oil (also commonly referred to as ULSD) for tuning and readiness testing. Unlimited operation on ULSD during emergency situations such as natural gas curtailment and interruption is permitted for this equipment.

A site location map of the campus where the CEP is located is presented in Figure 1-1. The campus is located in Prince George's County, Maryland which is designated as nonattainment for ozone. Additionally, Maryland is located in the Ozone Transport Region (OTR), which classifies the entire state of Maryland as nonattainment for ozone as well. Prince George's County is classified as

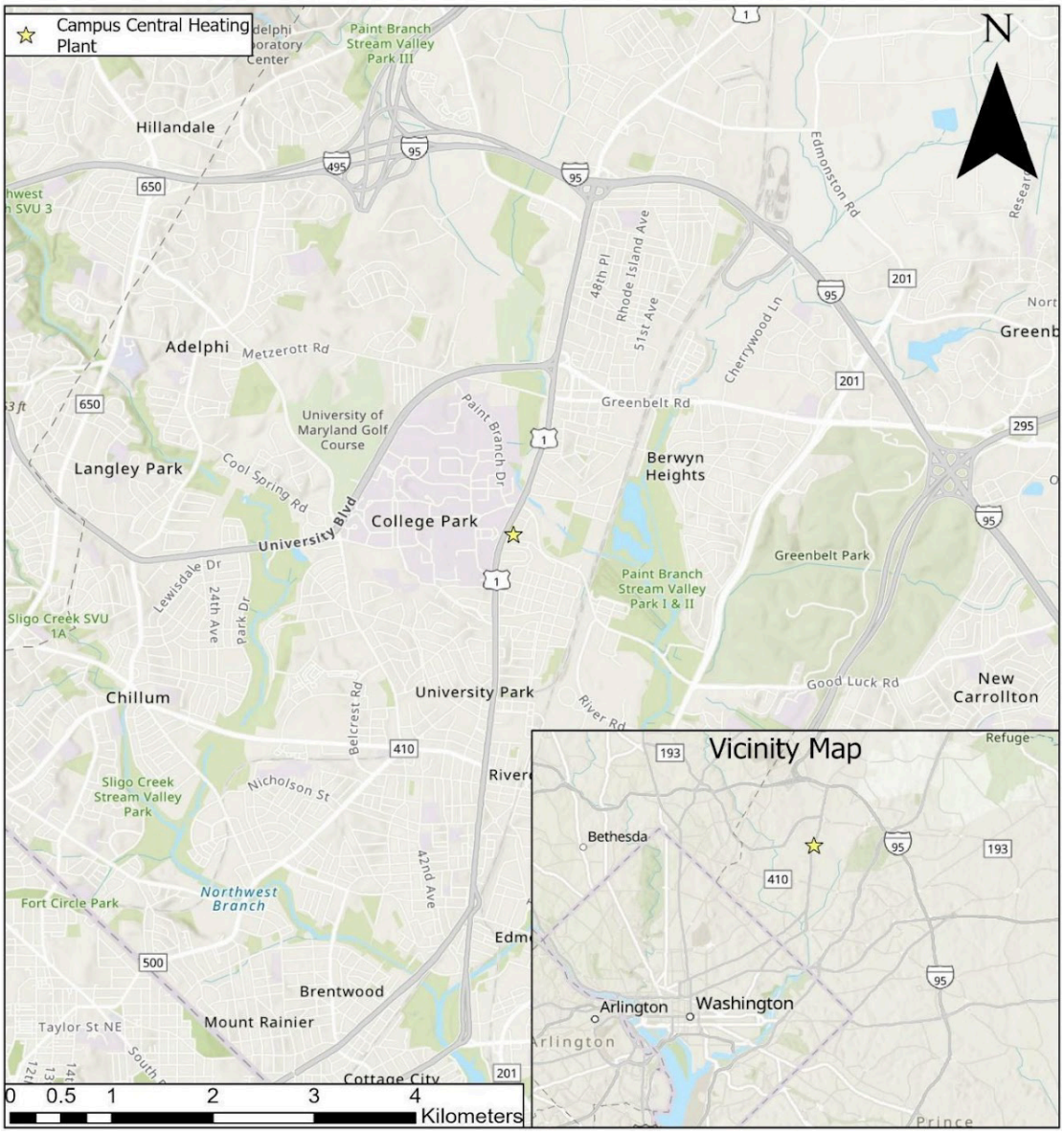
[1] The mobile boilers are each permitted to combust up to 48 hours per year of ultra-low sulfur fuel oil for boiler tuning and readiness testing. Operation of the boilers on ultra-low sulfur fuel oil during emergency situations such as natural gas curtailment and interruption is permitted but not regulated.

[2] The proposed engine will be required to support electrical load of the facility during periods of grid power interruptions.

attainment or unclassifiable for all other criteria air pollutants. With this permit application, UMD is seeking to obtain an air quality Permit to Construct to establish enforceable limits on pollutant emission increases in order to avoid Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) permitting. Because this project does not trigger major New Source Review (NSR) permitting requirements, an air quality dispersion modeling analysis is not required.

Enclosed are the required application materials consisting of project and process descriptions, emission calculations (Appendix A), MDE permit to construct application forms (Appendix B), environmental justice (EJ) analysis (Appendix C), a process flow diagram (Appendix D), site layout showing location of the proposed new units (Appendix E), vendor equipment specifications (Appendix F), CPCN exemption approval (Appendix G), workman's compensation insurance (Appendix H), public outreach conducted (Appendix I), and historical emissions reports of retiring units (Appendix J).

***Figure 1-1. Project Location Map: University of Maryland, College Park, Central Energy Plant***




Site Location Map

University of Maryland, College Park Campus Central Energy Plant

# 2. Project Description

## 2.1 Project Overview

### 2.1.1 Permanent Generation Sources

As discussed in Section 1, the project consists of the installation of the following equipment:

- Two (2) new 182.09 MMBtu/hr natural gas-fired boilers, each equipped with an integrated burner capable of being turned down to fire at 9.25 MMBtu/hr (referred to as the "pilot mode" of operation);
- One (1) new, 171.9 MMBtu/hr (16.5 MWe) natural gas-fired combustion turbine, equipped with a HRSG and supplemental natural gas-fired 92 MMBtu/hr duct burner; and
- One (1) new 2,346 hp (1,750 kWm) ULSD-fired generator proposed for emergency use.

The proposed new boilers and combustion turbine are each being permitted to combust up to 48 hours per year of ULSD for tuning and readiness testing. Sections 2.2.1 through 2.2.3 provide more details on the specifications of the new equipment associated with the project.

### 2.1.2 Decommissioning of Existing Emission Units

As part of the project, UMD is also proposing to retire the following existing emission units:

- EU #001-7 and EU #001-8 (MDE Registration Nos. 9-1081 and 9-1082): Two (2) 11.2 MWe (16,200 bhp) General Electric Combustion Turbines, each equipped with a HRSG and a 126 MMBtu/hr duct burner;
- EU #001-2 & EU #001-4 (MDE Registration Nos. 5-0256 and 5-0159): Two (2) Union Iron Boilers with heat input rating of 157 MMBtu/hr and 117 MMBtu/hr, respectively;
- EU #001-6: One (1) 780 kWe (1,109 bhp) ULSD fueled Caterpillar emergency generator; and
- EU #001-9: One (1) 95 MMBtu/hr Wabash mobile boiler.

### 2.1.3 Interim Boilers

UMD has been authorized the construction and operation of five (5) interim mobile boilers under the interim boiler permit (Permit No. 033-0010-5-1709), which will satisfy the site steam demand while the project is being constructed. UMD will remove those interim boilers from service after the permanent project sources become operational. The estimated operation time for the five (5) mobile boilers is expected to be less than two (2) years; however, operation beyond the two (2) years may occur which is discussed in further detail in a later section.

## 2.2 Project Need

UMD's public-private partnership ("P3") policy initiative began in 1995, when UMD was faced with serious deficiencies in its aging steam generation and electric distribution systems. As the result of a competitive procurement, UMD, in conjunction with the Maryland Economic Development Corporation ("MEDCO"), entered into a P3 to make capital improvements to energy systems and to manage, operate, and maintain those systems through August 31, 2019 (the "1999 Program"). The NextGen Program continues UMD's reliance on the P3 business model by ensuring UMD receives

reliable, efficient, affordable, and sustainable energy services over the 33-year term of the Energy Services Concession Agreement (Concession Agreement) between UMD and Maryland Energy Impact Partners LLC (MEIP).

The CEP, which is one component of UMD's energy systems, is vital to UMD's continued success as it is the sole provider of steam on campus. Steam is used in many aspects across the campus from heating academic buildings and dorms, to providing sanitation in dining halls, and maintaining decades long research projects. As the College Park campus has grown over the past 25 years, so has its steam demand. Currently, the peak hourly net steam demand of the CEP is roughly 235,000 pounds per hour (lb/hr) with the demand expected to grow to 260,000 lb/hr or more over the next 33 years.[3]

The CEP currently produces steam with six permanent pieces of equipment located within the CEP and one mobile boiler located adjacent to the north wall of the CEP. The permanent equipment includes two boilers installed in 1976 and 1966 (EU #001-2 and EU #001-4) and two natural gas combustion turbines installed in 2004, each of which is coupled with a HRSG/duct burner (EU #001-7 and EU #001-8). The HRSG produces steam with the exhaust energy from the combustion turbine as it produces electricity. The coupling of the combustion turbine and HRSG is known as combined heat and power (CHP). The rated gross steam output of this equipment is 463,000 lb/hr. Due to the age and phased out production of the equipment by manufacturers, maintaining the equipment has become increasingly difficult, thus reducing the reliability of the CEP.

To address this issue, a 75,000 lb/hr steam output mobile boiler was permitted in 2020 (EU #001-9) on the north side of the CEP to reinforce steam production reliability and provide supplemental steam capacity during periods of high demand or natural gas supply curtailments (reduction of natural gas deliveries to customers due to a shortage of supply or high demand, often implemented during the winter months). While the mobile boiler does not have the capabilities to support the entire demand of the campus, the rated gross steam output of all steam equipment is 568,000 lb/hr. Prior to 2017, the majority of UMD's steam requirements were met by operating the supplemental fuel burning in the HRSG duct burners. UMD only relied on boiler capacity during the CHPs' annual maintenance or if a CHP was otherwise unavailable. From early 2017 to late 2020, the boilers were the primary steam production units, thereby reducing their remaining life. With the HRSGs' reliability compromised, the CHPs' firm steam capacity decreased to 213,000 lb/hr, which was substantially below UMD's historic peak steam load. To mitigate the risk of the loss of either boiler, UMD permitted the mobile boiler as discussed above. While major overhauls of the CHPs improved their availability, UMD was concerned about the CHPs' ability to meet campus steam load if one or both of the CHPs became unavailable.

The steam producing equipment of the project will include two boilers and one CHP, each rated for steam output of approximately 150,000 lb/hr for a total capacity of 450,000 lb/hr of steam. The NextGen Program provides redundancy and allows the CEP to reliably meet the steam demand of the campus over the next 33 years by replacing the existing equipment with new equipment sized such that the CEP can support the campus steam demand.

[3] While the future steam demand is expected to be a contractual net 260,000 lb/hr, the project has the capability of generating more steam and it is expected that up to 271,000 lb/hr of steam could be expected over the term of the contract.

Natural gas will be the primary fuel burned in the new equipment installed at the CEP facility. ULSD is only proposed to be burned in the equipment at the new CEP facility during an emergent situation such as natural gas curtailment or supply interruption. UMD has voluntarily accepted a cap of 48 hours of non-emergency/non-curtailment operation per year on ULSD. These 48 hours will be used throughout the year for testing and tuning purposes in order to ensure that the CEP is able to switch over during curtailment or emergency events. While it is critical for UMD to maintain continuity of operations and world-changing research, participation in the curtailment program is a critical element of UMD's partnership with the surrounding community. UMD is one of the largest users of natural gas in the community. Participation in the voluntary curtailment program through Washington Gas is a way for UMD to ensure that everyone in the community has access to natural gas for heating, cooking, and bathing during times of high demand or low supply of natural gas.

There are high costs associated with purchasing and using equipment that has the ability to fire on multiple types of fuel, as well as higher costs and lower efficiency associated with the use of ULSD for fuel, as well as increased operational costs. UMD has the ability to switch the fuel used, whereas most homeowners and business owners in the surrounding community do not have this ability. During colder months, it would not be uncommon for the CEP to utilize over 5 million therms of natural gas on a monthly basis. This is the equivalent of roughly 20,000 homes in our surrounding community. While those infrequent periods of curtailment and testing may cause UMD to be slightly less sustainable and have slightly higher emission rates, it allows UMD to be a good neighbor and ensure the needs of the surrounding community are met.

### *2.2.1 Two (2) 182.09 MMBtu/hr Natural Gas-Fired Boilers*

As part of the project, UMD is proposing to install two (2) O-type Rentech boilers with flue gas recirculation (FGR) and low-nitrogen oxide (Low-$NO_x$) burners. The boilers will primarily be fired using natural gas but will have the capability to burn ULSD in instances where natural gas supply is curtailed by Washington Gas. ULSD firing during readiness testing, tuning, and other regulatory testing will be limited to 48 hours per year. There is no limit on ULSD firing during natural gas curtailment, or supply interruptions. Each boiler is capable of supplying up to 150,000 lb/hr of steam.

Both boilers will be equipped with natural gas-fired fast-start burners which can be turned down to 9.25 MMBtu/hr during periods of low steam demand. This mode of operation is referred to as the "pilot mode". Operation in the pilot mode maintains the key component of the boilers at close to optimal operating temperature, allowing the boilers to be able to quickly convert to full operation mode with a minimum start-up period, resulting in lower incremental heat input compared to keeping the boilers operational at some minimum load.

### 2.2.2 One (1) 171.9 MMBtu/hr (16.5 MWe) Solar Titan 130 Combustion Turbine

UMD is also proposing to install a Solar Titan 130 combustion turbine with a HRSG and supplemental duct firing of up to 92 MMBtu/hr (i.e., CHP operating mode). The combustion turbine will primarily be fired using natural gas but will have the capability to burn ULSD in instances where natural gas supply is curtailed or interrupted. ULSD firing during readiness testing, tuning, and other regulatory

testing will be limited to 48 hours per year. There is no limit on ULSD firing during natural gas curtailment, or supply interruptions. The supplemental duct burner will only be fired using natural gas.

Solar's Titan 130 is an integrated prime mover of a single shaft, axial flow design. The combustion design uses special fuel injectors with main and pilot fuel ports. The fuel injection is controlled during both startup and steady state operation to maintain stability of combustion and minimization of emissions. The combustion turbine is configured to use a dry low $NO_x$ emission combustion system ($SoLoNO_x$), which relies on lean premixed combustion to reduce the flame temperature resulting in lower $NO_x$ and carbon monoxide (CO) emissions.

### *2.2.3 One (1) 2,346 hp (1,750 kWm) Diesel Fueled Emergency Generator*

The project includes the addition of a 2,346 hp (1,750 kWm) diesel-fired emergency generator. The generator engine will use ULSD fuel and will be United States Environmental Protection Agency (USEPA)-certified to meet the New Source Performance Standards (NSPS) in Title 40 of the Code of Federal Regulations (40 CFR) 60, Subpart IIII and will meet the National Emissions Standards for Hazardous Air Pollutants (NESHAP), Subpart ZZZZ (See Section 5.0 for a detailed regulatory applicability analysis).

See Table 2-1 for a tabular representation of the project scope and schedule.

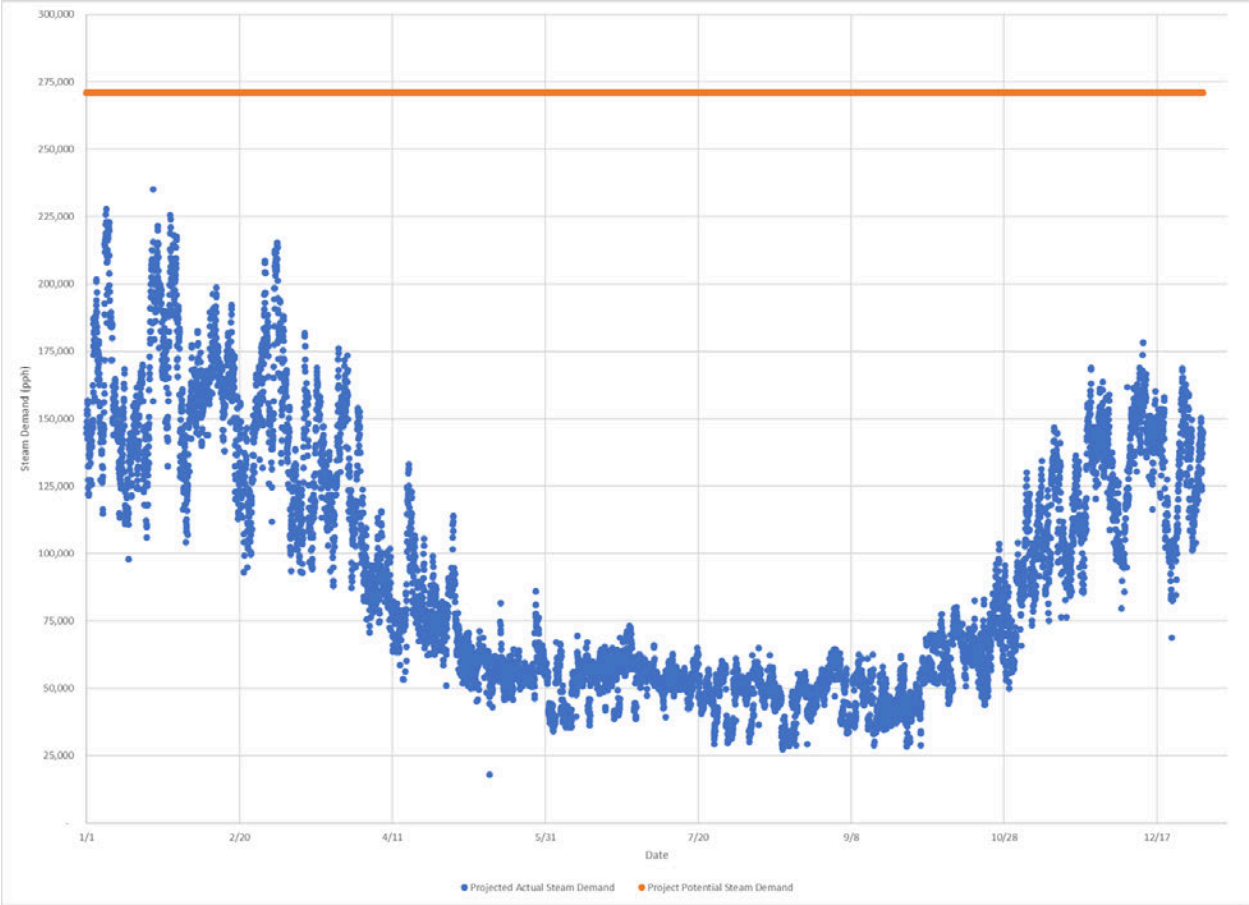
***Table 2-1. Project NextGen Scope and Overall Schedule***

| Emission Unit ID | Emission Unit Description | Action | Proposed Timeline |
|---|---|---|---|
| N/A | Five (5) interim mobile boilers authorized under Air Quality Permit to Construct 033-0010-5-1709 | Install and Start Operation | Third-Fourth Quarter, 2024 |
| EU #001-7 and EU #001-8 | Two (2) 16,200 bhp (11.2 Mwe) General Electric Combustion Turbines, each equipped with a HRSG and a 126 MMBtu/hr duct burner | Decommission | Second Quarter, 2025 |
| EU #001-2 and EU #001-4 | Two (2) Union Iron Boilers with heat input rating of 157 MMBtu/hr and 117 MMBtu/hr, respectively | Decommission | Second Quarter, 2025 |
| EU #001-6 | One (1) 1,109 bhp (780 kWe) Caterpillar emergency generator | Decommission | Second Quarter, 2025 |
| EU #001-9 | One (1) 95 MMBtu/hr Wabash mobile boiler | Decommission | Second Quarter, 2025 |
| TBD | Two (2) 182.09 MMBtu/hr Rentech Boilers | Install | Fourth Quarter, 2025 |
| TBD | One (1) 171.9 MMBtu/hr (16.5 Mwe) Solar Titan 130 Combustion Turbine equipped with a HRSG and a 92 MMBtu/hr duct burner | Install | First Quarter, 2026 |
| TBD | One (1) new 2,346 hp (1,750 kWm) emergency generator | Install | First Quarter, 2026 |
| TBD | New Equipment (Two boilers, one CT with HRSG and DB, and one emergency generator) | Commissioning | Third Quarter 2026 |
| N/A | Five (5) interim mobile boilers authorized under Air Quality Permit to Construct 033-0010-5-1709 | Decommission | First Quarter, 2027 (The Interim Boilers are expected to cease operation in the fourth quarter of 2026) |

## 2.3 Emissions Reductions from the Project

This proposed project is expected to result in improved efficiency and lower air emissions from the CEP. The equipment being retired is being replaced with newer, more efficient equipment. Emissions values shown throughout this application represent worst-case emissions per USEPA and MDE air quality regulations (that is, if the equipment ran 24 hours a day, 7 days a week, and 365 days a year or at a level of operation that is below the worst-case emissions but higher than expected actual emissions). This is required in order for MDE to adequately plan when assessing industrial growth in a region at a conservative level for the protection of human health and the environment. To better demonstrate the environmental benefit of this project, Figure 2-1 compares the actual steam demand of the university to the project's maximum steam demand used as the basis for requested project emission limits.

***Figure 2-1. Project Worst-Case Operational Steam Demand vs Projected Actual Steam Demand***




As shown in the graph, the actual steam demand is significantly lower than the maximum steam demand used as a basis for the requested project emission limits, indicating that actual emissions will also be much lower than the requested project emission limits. The actual emissions from the CEP improvements proposed as part of the project are expected to achieve a reduction of approximately 23% in greenhouse gases (GHG) emissions on an annual actual basis, which is the reduction that was noted in the Board of Public Works meeting held on May 15, 2024. In addition, the requested project emissions limits are below the current Title V operating permit emissions limits established for the existing equipment at the CEP. As such, the proposed project results in not only

improvement from an operational standpoint (i.e., more efficient equipment), it is an overall improvement on an environmental basis compared to the existing equipment at the CEP.

# 3. Emission Calculations

The following sections provide a description of the basis of the emissions estimates for the new equipment associated with the proposed project.

## 3.1 New Equipment Emissions Calculation Methodology

### 3.1.1 Two (2) 182.09 MMBtu/hr Boilers

Two (2) new natural gas- and ULSD-fired boilers will be installed to supplement the steam needs of the campus. Emissions of $NO_x$ and CO from these units are based on vendor data. For other pollutants, emission factors from AP-42 Table 1.4-2 were used (during natural gas firing) and AP-42 Tables 1.3-1, 1.3-2, 1.3-3 and 1.3-6 (during fuel oil firing). Emissions of hazardous air pollutants (HAPs) are based on the emission factors available in AP-42 Tables 1.4-3 and 1.4-4 (during natural gas firing) and AP-42 Tables 1.3-8 and 1.3-10 (during fuel oil firing).

Emissions of GHGs are based on the emission factors presented in 40 CFR 98, Table C-1 and C-2 and the emissions of GHGs as carbon dioxide equivalent ($CO_2e$) were developed based on the GHG species' global warming potentials (GWPs) presented in 40 CFR 98, Table A-1.

The two (2) boilers will also have integrated pilot burners capable of being turned down to 9.25 MMBtu/hr. The boilers' operation in this mode is referred to as "pilot mode". Operation in the pilot mode provides the advantage of expediting the startup of the steam boilers and eliminating the need to keep the boilers running at some low load. Some level of operation in the pilot mode is needed to meet the contractual obligation of restoring steam pressure to the system within 15 minutes of loss of pressure.

Emissions of $NO_x$, volatile organic compounds (VOC), and CO for operation in the pilot mode are based on vendor data. For other pollutants, emission factors from AP-42 Table 1.4-2 were used. Emissions of HAPs are based on the emission factors available in AP-42 Tables 1.4-3 and 1.4-4. Emissions of GHGs are based on the emission factors presented in 40 CFR 98, Table C-1 and C-2 and the emissions of GHGs as $CO_2e$ were developed based on the GHG species' GWPs presented in 40 CFR 98, Table A-1.

### 3.1.2 One (1) Solar Titan 130 Combustion Turbine with HRSG and Duct Burner

A new natural gas- and ULSD-fired combustion turbine with an associated natural gas fired only duct burner will be added as part of the project to supplement the steam needs of the campus. Emissions of $NO_x$, VOC and CO for the combustion turbine are based on vendor data. Emissions of other criteria pollutants from the combustion turbine are based on AP-42 Table 3.1-2a. Emissions of $NO_x$, VOC, particulate matter (PM), and CO for the duct burner are based on vendor data. Emissions of other criteria pollutants from the duct burner are based on AP-42 Table 1.4-2.

Emissions of HAPs are based on the emission factors available in AP-42 Tables 3.1-3, 3.1-4, 3.1-5 (combustion turbine) and AP-42 Tables 1.4-3, 1.4-4 (duct burner firing natural gas).

Emissions of GHGs are based on the emission factors presented in 40 CFR 98, Table C-1 and C-2 and the emissions of GHGs as $CO_2e$ were developed based on the GHG species' GWPs presented in 40 CFR 98, Table A-1.

### 3.1.3 One (1) 2,346 hp (1,750 kWm) Emergency Generator

A new diesel-fired 2,346 hp (1,750 kWm) emergency generator will be installed to provide backup power to the facility. The emissions from the emergency generator are based on 100 hours per year per the annual operating limit for emergency engines under NSPS Subpart IIII. The proposed emergency generator will be equipped with a Tier 2 certified engine.

Emissions of $NO_X$, CO, PM, and hydrocarbons (HC) are based on the emission guarantees. Emissions of sulfur dioxide ($SO_2$) are based on AP-42 Table 3.4-1 and the sulfur content of ULSD (15 ppmw or 0.0015% S). Emissions of HAPs are based on AP-42 Tables 3.4-3 and 3.4-4.

Emissions of GHGs are based on the emission factors presented in 40 CFR 98, Table C-1 and C-2 and the emissions of GHGs as $CO_2e$ were developed based on the GHG species' GWPs presented in 40 CFR 98, Table A-1.

### 3.1.4 Interim Boilers

Five (5) natural gas- and ULSD-fired interim boilers have been installed to supplement the steam needs of the campus during the construction of the new equipment associated with the project. Emissions are based on a combination of vendor data and AP-42 [AP-42 Section 1.4 (during natural gas firing) and AP-42 Section 1.3 (during fuel oil firing)]. Emissions of HAPs are based on the emission factors available in AP-42 Tables 1.4-3 and 1.4-4 (during natural gas firing) and AP-42 Tables 1.3-8 and 1.3-10 (during fuel oil firing).

Emissions of GHGs are based on the emission factors presented in 40 CFR 98, Table C-1 and C-2 and the emissions of GHGs as $CO_2e$ were developed based on the GHG species' GWPs presented in 40 CFR 98, Table A-1.

## 3.2 Requested Project Emissions Limits

It is not expected that all the new equipment associated with the project, including the interim boilers, will be running at full load for 8,760 hours per year. This level of operation would not only generate more steam than the campus can utilize, but it would exceed the capacity of the existing steam distribution system. At the same time, UMD would like the operational flexibility of running either individual pieces of the new and/or interim equipment, as well as various combinations of the new and/or interim equipment at either full or partial load capacities (or out of service if equipment repairs need to be conducted). As such, an operating scenario has been developed as the basis of the requested project emission limits for the project using the following key parameters which will allow operational flexibility between equipment type and load, as well as allow no disruption in the steam provided to the campus:

- contractually obligated steam service over a 33-year operating period (based on the expected life of the new equipment associated with the project);
- campus growth;
- extreme weather events due to climate change; and

- possibility of the interim boilers operating beyond the 2-year period to account for any potential delays in construction and/or operation of the new equipment.

MEIP and UMD have entered into a contractual agreement whereby the CEP's total steam delivery capacity over the 33-year operating period is required to be no less than 260,000 lb/hr with a minimum steam pressure at the delivery points of 90 pounds per square inch gauge ("PSIG") after excluding the largest single steam producing equipment. In order to meet this contractual requirement, MEIP's design includes the three steam producing pieces of equipment, each rated for approximately 150,000 pounds per hour. Throughout the year, based on operating conditions, each of the steam producers may operate at partial load.

Student enrollment at UMD has increased from 33,189 students in 2000 to 40,792 students in 2022.[4] Enrollment is expected to continue to grow over the next several decades. UMD will need to support this growth by expanding the use of the existing buildings and introducing new buildings to campus (dormitories, dining halls, classrooms, office buildings, laboratories, and other research facilities). The university's Campus Facilities Plan includes provisions for several new buildings over the expected life of the CEP. This growth is expected to increase the university's heating and cooling demand. Therefore, load on the project's power and steam generating equipment will potentially need to increase to be able to meet the higher demand.

Coupled with the growth, the university is expected to continue to see extreme weather events, such as polar vortexes, due to climate change. Though extreme cold weather events do not last over extended periods, they need to be considered when planning for fuel consumption of the project power and steam generation equipment. For example, a polar vortex can lower temperatures 20-30 °F below normal temperatures. A standard brick wall (brick, insulation, dry wall) will see a roughly 50% increase in heat loss when the outdoor temperature decreases from 30 °F to 10 °F. In this example, to maintain a comfortable temperature (70 °F), the steam generating equipment output would increase which in turn will result in more fuel combustion than on a normal cold day.

Lastly, while the project team is working towards meeting the 2-year timeline for operation of the interim boilers, there may be project delays that force keeping the interim boilers operational beyond the two years. This could include any delays in construction of the new equipment or potentially operating at some capacity with the new equipment if there are any issues with the installation and/or startup of the new equipment.

These design elements and future operational uncertainties were taken into consideration with the design of the new equipment associated with the project, as well as the development of the worst-case operational level. As such, UMD is expecting the worst-case operational level to be a production level of 271,000 lb/hr of steam to account for equipment and demand uncertainties. The requested project emission limits are based on this steam production level and the worst-case combination of equipment between the new equipment and the interim boilers. As such, UMD is requesting that the requested project emission limits apply to all project emission sources, including

[4] University of Maryland Campus Facilities Plan, November 2023, https://facilities.umd.edu/sites/default/files/2023-11/UMD%20CFP_Final%20Report_No%20Exec%20Summary%20-%20FINAL_webview.pdf

the interim boilers. UMD requests that compliance with the requested project emission limits be demonstrated monthly on a 12-month rolling basis.

***Table 3-1. Requested Project Emission Limits***

| **Pollutant** | **Permit Emission Limits (tpy)** |
|---|---|
| $NO_x$ | 111.6 |
| $NO_2$ | 111.6 |
| CO | 102.9 |
| $SO_2$ | 5.1 |
| VOC | 13.2 |
| PM | 13.1 |
| $PM_{10}$ | 13.9 |
| $PM_{2.5}$ | 13.9 |

# 4. New Source Review Analysis

## 4.1 New Source Review Program

New Source Review (NSR) is a federal permitting program, which requires construction permits for new major sources, or any proposed modifications at existing major sources, which results in a significant emissions increase and a significant net emissions increase of a regulated air pollutant. NSR comprises two permitting programs: Nonattainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD). NNSR permitting is applicable in areas that have been designated as nonattainment for a regulated pollutant. PSD permitting is applicable in areas that are designated as attainment or unclassifiable for a regulated pollutant. The campus is located in Prince George's County, which is designated as attainment or unclassifiable with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants except ozone, for which the county is designated as nonattainment.[5] Therefore, NNSR is the potentially applicable permitting program for emissions of $NO_X$ and VOC, which are the regulated precursors for ozone. PSD is the potentially applicable permitting program for all other regulated criteria pollutants.

## 4.2 Source Classification with Respect to NNSR and PSD

### 4.2.1 NNSR

NNSR regulations are codified in Title 26 of the Code of Maryland Regulations Subtitle 11 Chapter 17 (COMAR 26.11.17). Pursuant to COMAR 26.11.17.02A, NNSR is potentially applicable to sources that are new major sources and major modifications at major sources for $NO_x$ or VOC. As defined in COMAR 26.11.17.01B(17)(a)(i), a major stationary source in Prince George's county is one which has the potential to emit 25 tons per year (tpy) or more of VOC or $NO_x$. Under the NNSR permitting program, major source status is on a pollutant-by-pollutant basis. UMD is an existing major source for $NO_x$ and an existing minor source for VOC with respect to NNSR. Additionally, as defined in COMAR 26.11.17.01B(26)(a), a significant emissions increase that determines whether a project results in a major modification for $NO_x$ is 25 tpy for sources in Prince George's County.

### 4.2.2 PSD

PSD is the permitting program potentially applicable for all regulated criteria pollutants for which the area is designated as attainment or unclassifiable. MDE has adopted the federal PSD rules by reference (COMAR 26.11.06.14). The PSD regulations apply to new major stationary sources or to major modifications at existing major stationary sources. Major stationary sources are sources belonging to any one of the 28 source categories listed in the regulations that have the potential to emit more than 100 tpy of any PSD-regulated pollutant, or any other source which has the potential to emit more than 250 tpy of any PSD pollutant. Under the PSD permitting program, if you are major for one PSD pollutant, then you are considered a major source for all PSD pollutants. A major modification is defined as "any change to a major stationary source that would result in a significant emissions increase and a significant net emissions increase of any pollutant subject to regulation under the Act." A project is not a major modification if it does not cause a significant emissions

[5] The entire state of Maryland is located in the Ozone Transport Region [40 CFR 81.457] which is treated as ozone nonattainment for permitting purposes.

increase or a significant net emissions increase. Major modifications must meet certain pre-construction review and permitting requirements.

UMD is a major source under the PSD regulations because facilities containing fossil fuel boilers totaling more than 250 MMBtu/hr heat input are one of the 28 listed categories, and UMD has the potential to emit more than 100 tpy of one or more of regulated criteria pollutants (in this instance CO and $NO_2$).

Accordingly, the project must be evaluated to determine whether the emission increases and net emission increases from the project exceed the applicable significant emission rate (SER) in 40 CFR 52.21(b)(23)(i) for each PSD regulated pollutant.

## 4.3 New Source Review Applicability

### 4.3.1 Project Emissions Accounting Rule

An existing major stationary source (such as UMD with the exception of VOC) proposing a physical change or a change in its method of operation is required to determine whether the proposed project is a major modification subject to the NSR preconstruction permitting requirements by following a two-step applicability assessment. The first step (Step 1) is to determine if there is a "significant emission increase" of a regulated NSR pollutant from the proposed modification. If there is, the second step (Step 2) is to determine if there is a "significant net emission increase" of that pollutant. That is, Step 1 considers the effect of the project alone and Step 2 considers the effect of the project and any other emissions changes at the major stationary source that are contemporaneous to the project (i.e., generally within a five-year period) and creditable. Major NSR permitting applies only if there is a significant emissions increase AND a significant net emissions increase (both Steps 1 and 2 result in emissions over the applicable thresholds).

On November 24, 2020, the USEPA finalized clarifications noting that both emission increases and decreases from a project are allowed to be considered in Step 1 of the two-step NSR applicability test (known as the Project Emissions Accounting rule). This finalized rule is applicable to permitting authorities that have been delegated federal authority from USEPA to issue NSR permits, such as MDE. In addition, on May 3, 2024, the USEPA published proposed revisions to the Project Emissions Accounting rule. The proposed regulatory revisions:

- Clarify the definition of the term "project" to read "a discrete physical change in, or change in the method of operation of, an existing major stationary source, or a discrete group of such changes (occurring contemporaneously at the same major stationary source) that are substantially related to each other. Such changes are substantially related if they are dependent on each other to be economically or technically viable."
- Strengthen the monitoring, recordkeeping and reporting provisions in the NSR regulations to improve compliance with, and enforcement of, the NSR applicability process for minor modifications at existing major stationary sources.
- Require that emissions decreases included in the first step of the process to determine if NSR applies to a project be enforceable.

As discussed with MDE, UMD is incorporating the final and proposed Project Emissions Accounting rule provisions in this NSR applicability analysis for all pollutants except VOC since UMD is a minor

source for VOC emissions under the NNSR program. The remaining part of this section outlines the applicability analysis in accordance with the Project Emissions Accounting rule. Section 4.4 outlines how UMD will meet the recordkeeping and reporting requirements in accordance with the Project Emissions Accounting rule, as well as the requirement for the emissions decreases to be enforceable.

Step 1 calculates the emissions changes (increases and decreases) from the emissions units that are affected by the proposed project. As such, the Step 1 calculation for the proposed project considers the overall emission changes resulting from the following project elements:

- Retirement or decommissioning of the existing CEP sources (EU #001-7, EU #001-8, EU #001-2, EU #001-4, EU #001-6, and EU #001-9);
- Installation of the proposed new permanent units (two boilers, one combustion turbine, one HRSG/duct burner, and one emergency generator); and
- Operation of the interim boilers authorized under the interim boiler permit (Permit No. 033-0010-5-1709).

The purpose of the interim boilers is to meet the steam demand while the existing equipment is being decommissioned and the new equipment is being installed. As such, the interim boilers serve the same purpose as the existing and new equipment. The interim boilers will be removed after the project is completed. The interim boilers and the project are occurring contemporaneously at the same major stationary source and are substantially related. Therefore, UMD is including the interim boilers as part of the "project" in Step 1 of the NSR applicability analysis.

UMD is proposing federally enforceable emissions limits for the new equipment associated with the project and the interim boilers (see Section 3.2). Federally enforceable emission limits can be considered in calculated potential to emit (PTE). As such, the PEI is calculated as the difference between the PTE (calculated using the requested project emission limits) and the Baseline Actual Emissions (BAE) for the existing emission units being decommissioned.

$$PEI = PTE_{\text{(new units and interim boilers)}} - BAE_{\text{(retired units)}}$$

As described further below, NNSR and PSD applicability determination involves comparison of the PTE from a project or projects (Step 1) to the pollutant-specific PSD and NNSR SERs/major stationary source thresholds (MSTs).

### 4.3.2 Baseline Actual Emissions (BAE)

For NNSR emissions accounting purposes, COMAR 26.11.17.01B(3)(c) defines baseline actual emissions for an existing emissions unit as "the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding the date on which a complete application was submitted." MDE can allow a 24-month consecutive time period, within the last 10 years, upon a demonstration that it is more representative of normal source operations.

Baseline actual emissions for PSD are "the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period within the 10-year period immediately preceding either the date the owner or operator begins actual construction of the

project, or the date a complete permit application is received by the Administrator for a permit required under this section or by the reviewing authority for a permit required by a plan, whichever is earlier, except that the 10-year period shall not include any period earlier than November 15, 1990." [40 CFR 52.21(b)(48)(ii)]

The baseline emissions for the new sources proposed as part of the project are zero since they have no historical emissions.

For the existing emission units proposed to be shut down as part of this project, emissions data reported to MDE for the period from January 2020 through December 2023 was reviewed. Based on the data, the highest 24-month period is from September 2020 through August 2022. Given the numerous operational issues with the facility over the last several years, this period was selected as being the most indicative of actual full operation of the existing facility. The same baseline period was used for all pollutants and all emission units involved in the project. A summary of the baseline emissions analysis is provided in Appendix A.

### 4.3.3 Requested Project Emission Limits

As discussed in Section 3.2, in order to preserve flexibility and optimize operation of the CEP, UMD is requesting federally enforceable emission limits for the new equipment and the interim boilers to maintain the project emissions increase below the applicable thresholds. These requested project emission limits are presented in Table 3-1 above**.**

### 4.4.4 NSR Applicability Analysis

As shown in Table 4-1, the PEIs are all less than the PSD and NNSR SERs/MSTs. Therefore, no further analysis (i.e., Step 2) is required and the project does not require major NSR permitting under the NNSR or PSD programs. The project will be authorized under a minor source Permit to Construct issued by MDE. Detailed emissions calculations can be found in Appendix A.

***Table 4-1. NNSR/PSD Applicability Determination***

| Parameter | Annual Emissions (tpy) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **$NO_X$** | **$NO_2$** | **CO** | **$SO_2$** | **VOC** | **PM (Filt)** | **$PM_{10}$ (Total)** | **$PM_{2.5}$ (Total)** | **$CO_{2e}$** |
| Proposed Project Emission Limits | 111.6 | 111.6 | 102.9 | 5.1 | 13.2 | 13.1 | 13.9 | 13.9 | 205,414 |
| Emissions Decreases from Existing Emission Units Proposed to be Decommissioned | 119.1 | 119.1 | 8.5 | 5.1 | N/A | 5.6 | 5.6 | 5.6 | 131,572 |
| Project Emissions Increase (PEI) | -7.5 | -7.5 | 94.3 | -0.03 | 13.2 | 7.5 | 8.4 | 8.3 | 73,841 |
| PSD and NNSR SERs/MSTs[1] | 25 | 40 | 100 | 40 | 25 | 25 | 15 | 10 | 75,000 |
| **Above SER Threshold?** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | N/A[2] |

1. PSD SERs are provided in 40 CFR 52.21(b)(23)(i). NNSR SERs/MSTs for $NO_x$ and VOC are based on COMAR 26.11.17.01.

2. PSD review cannot be triggered for $CO_{2e}$ alone. PSD review only potentially applies if the modification triggers PSD review for another pollutant [40 CFR 52.21(b)(49)(iv)].

### 4.4.1 Compliance with the Proposed 2024 Project Emissions Accounting Rule Revisions

UMD has followed the revised definition of "project" in the proposed 2024 Project Emissions Accounting rule while performing the major NSR applicability analysis for this project as described in Section 4.3. UMD will also comply with the enhanced recordkeeping and reporting requirements in the proposed Project Emissions Accounting rule as this project is a minor modification at a major stationary source. As shown in Table 4-2, this application and subsequent issuance of a permit fulfills the recordkeeping requirements of this rule.

### *Table 4-2. Project Emissions Accounting Rule Requirements*

| Requirement | Location of Information |
|---|---|
| Name of the project | NextGen Project |
| Project's intended objectives | Refer to Sections 1 and 2 of this application |
| Each physical change associated with the project's objectives | Refer to Sections 1 and 2 of this application |
| Estimated timeline of construction and regular operation | Refer to timelines in application forms and Table 2-1 |
| Identification of the emission units whose emissions of a regulated NSR pollutant could be affected by the project | Refer to Section 2.1 of this application |
| Description of the applicability test used to determine that the project is not a major modification for any regulated pollutant | Refer to Section 4 of this application |
| Notification to MDE of the information above | This application fulfills this requirement |
| Requirement to monitor the emissions of the regulated NSR pollutants emitted by the new equipment associated with the project and the interim boilers to demonstrate compliance monthly | Monitoring requirement to be included in issued Permit to Construct. UMD proposed to calculate rolling 12-month emissions totals on a monthly basis. |
| Federally enforceable emission reductions of the decommissioned emission units that contribute to the BAE, which will be physically demolished and removed from the site | UMD requests conditions in the Permit to Construct requiring the removal/decommissioning of the existing equipment as detailed in Section 2.1.2 |

# 5. State and Federal Regulatory Applicability

This section summarizes the applicable federal and state regulations to the proposed project at the campus. Federal and state applicability is evaluated for the project sources at the campus.

## 5.1 State Regulatory Requirements

### 5.1.1 COMAR 26.11.02.09 – Sources Subject to Permits to Construct and Approvals

This regulation applies to the construction or modification of potential air emission sources. Air Quality Permits to Construct are required before construction or modification can begin for various source types. The new equipment associated with the proposed project requires a Permit to Construct since the project sources do not meet any of the exemption criteria in COMAR 26.11.02.10. Submittal of this permit to construct application meets the requirements of this section.

The Public Service Commission of Maryland ("Commission") is required, pursuant to the Public Utilities Article of the Annotated Code of Maryland, to grant its approval prior to the construction of a generating station in Maryland. The Public Utilities Article mandates one of two types of authorization prior to commencing the construction of a generation station of greater than 2,000 kW (or equal to or greater than 2,000 kWs if generating electricity from a solar photovoltaic system). Large generating stations constructed to serve load in a regional market require a Certificate of Public Convenience and Necessity ("CPCN") under Public Utilities Articles §7-207 and §7-208. However, Public Utilities Article § 7-207.1 provides that certain power generation projects are exempt. Since the proposed 16.5 MWe Solar Titan 130 Combustion Turbine is greater than 2,000 kW, a CPCN exemption application was submitted by UMD to the Commission. The Commission approved the CPCN exemption on September 5, 2024. A copy of the approved CPCN exemption is attached in Appendix G.

### 5.1.2 COMAR 26.11.02.11 – Procedures for Obtaining Permit to Construct for Significant Sources

COMAR 26.11.02.11 delineates specific procedures governing applications for permits to construct for certain significant sources of regulated air pollutants as defined under COMAR 26.11.02.11A(1). The NexGen project will construct NSPS and NESHAP-regulated sources and as such is subject to the provisions requiring submittal of an application for a permit to construct covering the project. Therefore, prior to commencing construction, UMD is required to obtain the necessary construction approvals via submittal of an administratively complete application that contains the information required under COMAR 26.11.02.11D.

### 5.1.3 COMAR 26.11.02.13 – Sources Subject to State Permit to Operate

COMAR 26.11.02.13 does not require facilities to obtain a state operating permit for sources that are covered by a Part 70 permit. UMD operates under Title V operating permit No. 24-033-0010. However, this project may be subject to a state permit to operate until the project

is incorporated into the Title V operating permit. The new emission units can operate as an off-permit change to the Title V operating permit in the interim.

### 5.1.4 COMAR 26.11.03 – Permits, Approvals, and Registration – Title V Permits

UMD operates under Title V operating permit No. 24-033-0010. The current Title V permit expires on September 30, 2027. The project can operate as an off-permit change to the Title V operating permit. UMD will be required to submit a permit modification application for the Title V operating permit in accordance with the permit conditions in the issued permit to construct for the proposed project.

### 5.1.5 COMAR 26.11.06 – General Emission Standards, Prohibitions, and Restrictions

UMD is subject to the nuisance and odors subsections (COMAR 26.11.06.08 and .09, respectively) of this regulation and will comply with the applicable requirements therein.

COMAR 26.11.06.08 (Nuisance) requires that "An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution."

COMAR 26.11.06.08 (Odors) requires that "A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."

### 5.1.6 COMAR 26.11.09 – Control of Fuel-Burning Equipment, Stationary Internal Combustion Engines, and Certain Fuel-Burning Installations

COMAR 26.11.09 regulates visible emissions, $SO_2$, and $NO_X$ from new fuel-burning equipment constructed in the state of Maryland. The two new boilers, the combustion turbine and duct burner, and the emergency generator meet the definition of fuel burning equipment and are subject to the requirements of this chapter. UMD will comply with the requirements of this chapter for the new sources.

### 5.1.7 COMAR 26.11.10 – COMAR 26.11.14 – Categorically Inapplicable

### 5.1.8 COMAR 26.11.15 and .16– Toxic Air Pollutants

The provisions of COMAR 26.11.15 regulate emissions of any Class I or Class II toxic air pollutant (TAP) into the ambient air from any installation or new source if the source meets certain applicability criteria under the regulation. However, pursuant to COMAR 26.11.15.03B(2)(a), since the project only emits TAP emissions from “fuel burning equipment”, the project and its associated equipment are therefore exempt from the requirements of COMAR 26.11.15 and COMAR 25.11.16.

### 5.1.9 COMAR 26.11.17 – COMAR 26.11.35 – Categorically Inapplicable

### 5.1.10 COMAR 26.11.36 – Distributed Generation

The provisions of COMAR 26.11.36 apply to owners and operators of engines and curtailment service providers. The only requirements under COMAR 26.11.36 for the proposed emergency engine are to comply with the federal engine rules (40 CFR 60, Subpart IIII and 40 CFR 63, Subpart ZZZZ).

### 5.1.11 COMAR 26.11.37 – COMAR 26.11.43 – Categorically Inapplicable

## 5.2 Federal Regulatory Applicability

### 5.2.1 New Source Performance Standards (NSPS)

The following subparts of the NSPS, codified at 40 CFR 60, are evaluated for potential applicability to the proposed project.

#### *5.2.1.1 NSPS Subpart A – General Provisions*

Sources subject to source specific NSPS are also subject to the general provisions of NSPS Subpart A that contain the initial notification requirements, initial startup notifications, performance tests, general monitoring, recordkeeping, and reporting requirements.

#### *5.2.1.2 NSPS Subpart Db or Dc – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units or Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*

NSPS Subpart Db applies to any steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 MMBtu/hr). The two boilers are each rated at 182.09 MMBtu/hr on natural gas and 175.08 MMBtu/hr on fuel oil and are therefore subject to NSPS Subpart Db. NSPS Subpart Db contains emissions standards for $SO_2$, $NO_x$ and PM.

Since the boilers will burn ULSD and natural gas, they are exempt from the $SO_2$ emissions standard under NSPS Subpart Db [40 CFR 60.42b(k)(2)] and the PM emissions standard under NSPS Subpart Db [40 CFR 60.43b(h)(5)]. Per 40 CFR 60.44b(a), natural gas- and distillate oil-fired boilers that are "high heat release rate"[6] units are subject to a $NO_x$ emission standard of 0.20 lb/MMBtu. UMD will install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) for measuring $NO_x$ and either $O_2$ or $CO_2$ emissions discharged to the atmosphere, as required by 40 CFR 60.48b(b)(1), to demonstrate compliance with the $NO_x$ emission standard. Per 40 CFR 60.49b(r)(1), UMD will maintain fuel receipts demonstrating the combustion of low sulfur and low ash content fuels burned in these boilers.

[6] *High heat release rate* means a heat release rate greater than 730,000 J/sec-$m^3$ (70,000 Btu/hr-$ft^3$). The proposed boilers have a volumetric heat release rate greater than 70,000 Btu/hr-$ft^3$.

NSPS Subpart Dc applies to a steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). The proposed duct burner is rated at 92 MMBtu/hr and is potentially subject to NSPS Subpart Dc. However, because the duct burner is part of the combustion turbine system, it is instead subject to NSPS Subpart KKKK [40 CFR 60.4305(a) and (b)].

#### *5.1.2.3 NSPS Subpart Kb – Volatile Organic Liquid Storage Vessels*

NSPS Subpart Kb is applicable to storage vessels for which construction, modification or reconstruction commenced after July 23, 1984, with storage capacities greater than or equal to 75 $m^3$ (19,812 gallons) and that store volatile organic liquids (VOL). No new VOL storage tanks are being proposed as part of this project and as such, NSPS Subpart Kb is not applicable.

#### *5.1.2.4 NSPS Subpart Kc – Volatile Organic Liquid Storage Vessels*

NSPS Subpart Kc is applicable to storage vessels for which construction, modification or reconstruction commenced after October 4, 2023, with storage capacities greater than or equal to 75.7 $m^3$ (20,000 gallons) and that store volatile organic liquids (VOL). No new VOL storage tanks are being proposed as part of this project and as such, NSPS Subpart Kc is not applicable.

#### *5.1.2.5 NSPS Subpart IIII – NSPS for Stationary Compression Ignition Internal Combustion Engines*

NSPS Subpart IIII applies to stationary compression-ignition internal combustion engines manufactured in 2007 or later. The proposed standby generator (2,346 hp) will be subject to NSPS Subpart IIII. Per NSPS Subpart IIII, UMD must operate the engine in compliance with the emergency engine emission standards set forth in 40 CFR 60.4204 for non-methane hydrocarbons plus $NO_x$, CO, and PM.

UMD proposes to comply with NSPS Subpart IIII by purchasing a USEPA Tier II engine certified by the manufacturer and equipped with a non-resettable hour meter, by installing and configuring the engine per the manufacturer's specifications, and by operating and maintaining the engine consistent with the manufacturer's instructions. Additionally, diesel fuel purchased will have a maximum sulfur content of 15 ppmw. The standby generator will operate for no more than 100 hours per year for maintenance and testing. Of the 100 hours per year, 50 hours per year can be used for non-emergency operation. The 50 hours per calendar year for non-emergency situations will not be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except under specific conditions [40 CFR 60.4211(f)].

#### *5.1.2.6 NSPS Subpart KKKK – NSPS for Stationary Combustion Turbines*

NSPS Subpart KKKK applies to stationary combustion turbines[7] (and associated HRSGs and duct burners) that commence construction after February 18, 2005, and that have a heat input at peak load that is equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel.

The proposed combustion turbine will have a peak load heat input of greater than 50 MMBtu/hr but less than 850 MMBtu/hr. Pursuant to Table 1 in NSPS Subpart KKKK, new natural gas-fired combustion turbines in this size range are subject to a $NO_x$ emission limit of 25 ppm at 15 percent oxygen ($O_2$) or 1.2 pound per megawatt-hour (lb/MWh). During fuel oil firing, the new combustion turbine is subject to an emission standard of 74 ppm @ 15% $O_2$ or 3.6 lb/MWh. UMD will comply with the testing and monitoring requirements of this subpart.

NSPS Subpart KKKK specifies that the proposed combustion turbine can either comply with an $SO_2$ emission limit of 0.9 lb/MWh gross output or must not burn in any fuel which contains total potential sulfur emissions in excess of 0.060 lb $SO_2$/MMBtu heat input. Pipeline natural gas and ULSD are the fuels proposed for the combustion turbine and HRSG/duct burner and UMD will comply with the fuel monitoring requirements of this subpart.

Note that NSPS Subpart GG is not applicable to the combustion turbine since it is subject to NSPS Subpart KKKK [40 CFR 60.4305(b)].

#### *5.1.2.7 NSPS Subpart TTTT – NSPS for Greenhouse Gas Emissions for Electric Generating Units*

NSPS Subpart TTTT applies to stationary combustion turbines that commence construction after January 8, 2014 but on or before May 23, 2023, or commences reconstruction after June 18, 2014, but on or before May 23, 2023 and have a base heat input rating greater than 250 MMBtu/hr and serve a generator capable of selling 25 MW of electricity to a utility power distribution system.

The proposed combustion turbine is not greater than 250 MMBtu/hr in size and will not serve a generator capable of selling 25 MW of electricity to a power distribution system and as such is not an affected source under this rule.

#### *5.1.2.8 NSPS Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Modified Coal-Fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units*

NSPS Subpart TTTTa applies to stationary combustion turbines that commence construction or reconstruction after May 23, 2023 and have a base heat input rating greater than 250 MMBtu/hr and serve a generator capable of selling 25 MW of electricity to a utility power distribution system. The proposed combustion turbine is not greater than 250 MMBtu/hr in size and will not

[7] Only heat input to the combustion turbine is included in applicability determination. Any additional heat input to the associated HRSG or duct burners is not used in determining the unit's peak heat input. However, if this subpart is applicable to the combustion turbine, NSPS Subpart KKKK does apply to emissions from any associated HRSG and duct burners.

serve a generator capable of selling 25 MW of electricity to a power distribution system and as such is not an affected source under this rule.

## 5.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP)

### *5.2.2.1 NESHAP Subpart A – General Provisions*

Sources subject to source specific NESHAP are also subject to the general provisions of NESHAP Subpart A that contain the initial notification requirements, initial startup notifications, performance tests, general monitoring, recordkeeping, and reporting requirements.

### *5.2.2.2 NESHAP Subpart YYYY – Stationary Combustion Turbines*

NESHAP Subpart YYYY provides HAP emission limitations, operating limitations, and compliance requirements for stationary combustion turbines located at major sources of HAPs. UMD is not a major source of HAPs and therefore, the proposed combustion turbine is not subject to NESHAP Subpart YYYY.

### *5.2.2.3 NESHAP Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE)*

NESHAP Subpart ZZZZ provides HAP emission limitations and operational limitations for stationary RICE including emergency engines located at major or area sources of HAP. The proposed 2,346 hp diesel-fired emergency generator is subject to NESHAP Subpart ZZZZ and will comply with the NESHAP via compliance with NSPS Subpart IIII [40 CFR 63.6590(c)].

### *5.2.2.4 NESHAP Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*

NESHAP Subpart DDDDD establishes emission limitations and work practice standards for HAP emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. UMD is not a major source of HAPs and therefore, the proposed boilers are not subject to NESHAP Subpart DDDDD.

### *5.2.2.5 NESHAP Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, Institutional Boilers Area Sources*

NESHAP Subpart JJJJJJ establishes emission limitations and work practice standards for HAP emitted from industrial, commercial, and institutional boilers and process heaters located at area sources of HAP. UMD is an area source of HAP and the proposed Rentech boilers and the HRSG duct burner are potentially subject to NESHAP Subpart JJJJJJ.

However, per 40 CFR 63.11195(e), gas-fired boilers are exempt from the requirements of NESHAP Subpart JJJJJJ. Pursuant to 40 CFR 63.11237, a gas-fired boiler "includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or for periodic testing, maintenance, or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year." Since UMD is proposing to limit operation on fuel oil to no more than 48 hours/year for the proposed Rentech boilers, the proposed Rentech boilers are exempt from the requirements of NESHAP Subpart JJJJJJ.

The duct burner meets the definition of a waste heat boiler under NESHAP Subpart JJJJJJ and waste heater boilers are excluded from the definition of a boiler (40 CFR 63.11237). As such, the duct burner is not an affected source under NESHAP Subpart JJJJJJ.

### 5.2.3 Title V Operating Permits – 40 CFR 70

The facility currently operates under Title V operating permit No. 24-033-0010 issued December 12, 2022 by MDE and that expires on September 30, 2027. The emission units permitted under this proposed project will be incorporated into the Title V operating permit.

### 5.2.4 Acid Rain Program – 40 CFR 72 - 78

Title IV authorizes the EPA under the Acid Rain Program (40 CFR 72 through 78) to achieve reductions of $SO_2$ and $NO_x$ emissions (acid rain causing pollutants). The proposed project is not subject to the requirements listed under this rule because pursuant to 40 CFR 72.6(b)(8), a non-utility unit is not subject to this rule.

# Appendix A. Emission Calculations

**[The contents of this appendix have been redacted or removed due to confidential and proprietary vendor specific information.]**

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Emissions Summary**

**Project Sources: Potential to Emit (PTE) at 8760 hours/year of Operation**

| Emission Unit [2] | Potential Annual Emissions (tpy) [1,2,4] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $NO_x$ | $NO_2$ | CO | $SO_2$ | VOC | PM (Filt) | $PM_{10}$ (Total) | $PM_{2.5}$ (Total) | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ | HAPs |
| Two (2) Rentech Boilers (NG+ULSD) - Main Mode | 59.7 | 59.7 | 60.2 | 0.94 | 8.5 | 3.1 | 11.9 | 11.8 | 187,961 | 3.6 | 0.4 | 188,159 | 2.92 |
| Two (2) Rentech Boilers (NG) - Pilot Mode | 20.0 | 20.0 | 60.8 | 0.05 | 2.4 | 0.1 | 0.6 | 0.6 | 9,479 | 0.2 | 0.02 | 9,488 | 0.15 |
| Two (2) Rentech Boilers - Worst Case PTE of Main and Pilot Mode [3] | 59.7 | 59.7 | 60.8 | 0.94 | 8.5 | 3.1 | 11.9 | 11.8 | 187,961 | 3.6 | 0.36 | 188,159 | 2.92 |
| Solar Titan 130 Combustion Turbine (NG+ULSD) | 43.2 | 43.2 | 43.1 | 2.57 | 5.0 | 1.4 | 5.0 | 5.0 | 88,694 | 1.7 | 0.2 | 88,787 | 0.78 |
| Cleaver Brooks HRSG Duct Burner (NG) | 40.3 | 40.3 | 33.0 | 0.23 | 4.0 | 0.7 | 3.1 | 3.1 | 47,137 | 0.9 | 0.1 | 47,186 | 0.74 |
| Emergency / Standby Generator (ULSD) | 1.4 | 1.4 | 0.2 | 1.3E-03 | 8.1E-02 | 2.0E-02 | 5.1E-02 | 5.1E-02 | 145 | 5.9E-03 | 1.2E-03 | 145 | 1.40E-03 |
| **Total Potential Emissions from Project Sources** | **224.3** | **224.3** | **258.0** | **4.7** | **28.6** | **8.5** | **32.5** | **32.4** | **521,377.2** | **9.9** | **1.0** | **521,924.1** | **7.5** |

[1] $PM_{10}$, and $PM_{2.5}$ emissions include both filterable and condensable particulate matter.
PTE Scenario assumes all proposed equipment, except the emergency generator, is operating at maximum capacity for 8,760 hours per year firing natural gas.
An additional 48 hr/year was assumed for operation on ULSD for the following: boilers - 48 hours/year/unit; combustion turbine 48 hrs/yr/unit.
Emergency generator is assumed to operate at maximum load for 100 hours per year for PTE calculations.
[2] Emissions from the five (5) interim mobile boilers are not included in this assessment as are expected to be decommissioned after the proposed permanent equipment is commissionec
[3] Due to equipment design, the boilers and associated pilot burners cannot be operated simultaneously, i.e., the boilers cannot operate in Main Mode and Pilot Mode at the same time. If a boiler is producing steam, the pilot burner cannot operate.
[4] The PTE values shown in this table are conservative and for informational purposes only.

**Project Sources: Requested Permit Limits**

| Emission Unit | Annual Emissions (tpy) [1,2] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $NO_x$ * | $NO_2$ * | CO | $SO_2$ [2] | VOC * | PM (Filt) [2] | $PM_{10}$ (Total) * | $PM_{2.5}$ (Total) * | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ | HAPs |
| Two (2) Rentech Boilers (NG+ULSD) - Main Mode | 31.4 | 31.4 | 31.4 | 0.49 | 4.4 | 1.6 | 6.2 | 6.2 | 98,230 | 1.9 | 0.2 | 98,335 | 1.52 |
| Two (2) Rentech Boilers (NG) - Pilot Mode | 4.1 | 4.1 | 12.6 | 0.01 | 0.5 | 0.0 | 0.1 | 0.1 | 1,961 | 0.0 | 0.00 | 1,963 | 0.03 |
| Solar Titan 130 Combustion Turbine (NG+ULSD) | 33.5 | 33.5 | 33.2 | 1.98 | 3.9 | 1.1 | 3.9 | 3.9 | 68,385 | 1.3 | 0.1 | 68,457 | 0.60 |
| Cleaver Brooks HRSG Duct Burner (NG) | 31.2 | 31.2 | 25.6 | 0.18 | 3.1 | 0.6 | 2.4 | 2.4 | 36,476 | 0.7 | 0.1 | 36,514 | 0.57 |
| Emergency / Standby Generator (ULSD) | 1.4 | 1.4 | 0.2 | 1.3E-03 | 0.08 | 0.02 | 0.05 | 0.05 | 145 | 5.9E-03 | 1.2E-03 | 145 | 1.40E-03 |
| Total Projected Actual Emissions from Project Sources | 101.5 | 101.5 | 102.9 | 2.7 | 12.0 | 3.4 | 12.7 | 12.6 | 205,197 | 3.9 | 0.4 | 205,414 | 2.72 |
| Emission Limits requested in Interim Boiler Permit Modification Submitted on November 13, 2024 [2] | 54.1 | 54.1 | 54.0 | 5.1 | 7.2 | 13.1 | 13.1 | 13.1 | 174,063 | 3.3 | 0.3 | 174,246 | 2.74 |
| **Requested Project Permit Limits** | **111.6** | **111.6** | **102.9** | **5.1** | **13.2** | **13.1** | **13.9** | **13.9** | **205,196.7** | **3.9** | **0.4** | **205,413.8** | **2.72** |

[1] $PM_{10}$, and $PM_{2.5}$ emissions include both filterable and condensable particulate matter.
Projected actual emissions are calculated based on the expected operation of the steam producing equipment. See equipment specific pages for detailed calculations.
Emergency generator is assumed to operate at maximum load for 100 hours per year for PTE calculations as well as for the projected actual emissions calculations.
* Includes 10% factor for all pollutants except CO, SO2, PM and greenhouse gases to account for worst-case emissions between various equipment scenarios
[2] Emissions from the five (5) interim mobile boilers are not included in this assessment as they are expected to be decommissioned after the proposed permanent equipment is commissioned. However, emissions of SO2 anc
PM permitted for the Interim Boilers are higher than those for the permanent equipment. As such, for SO2 and PM, the emission limits are set at the requested limits of the Interim Boilers.

**Project Emissions Increase**

| Parameter | Annual Emissions (tpy) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $NO_x$ | $NO_2$ | CO | $SO_2$ | VOC | PM (Filt) | $PM_{10}$ (Total) | $PM_{2.5}$ (Total) | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ [2] |
| Proposed Project Permit Limits | 111.6 | 111.6 | 102.9 | 5.1 | 13.2 | 13.1 | 13.9 | 13.9 | 205,197 | 3.9 | 0.4 | 205,414 |
| Emissions Decreases: Existing Emission Units Proposed to be Decommissioned | 119.1 | 119.1 | 8.5 | 5.1 | - | 5.6 | 5.6 | 5.6 | 131,433 | 2.5 | 0.3 | 131,572 |
| Project Emissions Increase | -7.5 | -7.5 | 94.3 | -0.03 | 13.2 | 7.5 | 8.4 | 8.3 | 73,764 | 1.4 | 0.1 | 73,841 |
| PSD and NNSR Significant Emission Rates (SERs) [1] | 25 | 40 | 100 | 40 | 25 | 25 | 15 | 10 | N/A | N/A | N/A | 75,000 |
| **Above SER/MST Threshold?** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **N/A** | **N/A** | **N/A** | **N/A** |

1. PSD SERs are provided in 40 CFR 52.21(b)(23)(i). NNSR SERs for NOx and VOC are based on COMAR 26.11.17.01.
2. PSD review cannot be triggered for CO2e alone. PSD review applies if the modification triggers PSD review for another pollutant [40 CFR 52.21(b)(49)(iv)].

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential Emissions**
**Interim Boilers Boilers - Natural Gas Firing and ULSD Firing**

| Scenario | Potential |
|---|---|
| **Fuel:** | Natural |
| **Number of Boilers:** | 5 |

| Pollutant | Permited Emissions (tpy) |
|---|---|
| ***Criteria:*** | |
| Particulate Matter - Filt only | 13.07 |
| Particulate Matter <10 microns (PM10) - Filt+Cond. | 13.07 |
| Particulate Matter < 2.5 microns (PM2.5) - Filt+Cond. | 13.07 |
| Sulfur Dioxide (SO2) | 5.06 |
| Nitrogen Oxides (NOX) | 54.08 |
| Volatile Organic Compounds (VOC) | 7.15 |
| Carbon Monoxide (CO) | 53.99 |
| ***HAP:*** | 2.74E+00 |
| ***GHG 2:*** | Metric |
| Carbon Dioxide (CO2) | 157,907.00 |
| Methane (CH4) | 3.00 |
| Nitrous Oxide (N2O) | 0.30 |
| Total CO2e | 158,073.00 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Projected Operation of the New Equipment**

| Projected Operation | | |
|---|---|---|
| | Hours NG | LOAD NG |
| CT | 8,352 | 80.70% |
| HRSG | 8,400 | 80.70% |
| Rentech Boiler 1 | 4,584 | 99.20% |
| Rentech Boiler 2 | 4,584 | 99.20% |
| Pilot 1 | 1,812 | N/A |
| Pilot 2 | 1,812 | N/A |
| *NG - Natural Gas | | |

| Projected Operation | | |
|---|---|---|
| | Hours ULSD | LOAD ULSD |
| CT | 48 | 100.00% |
| HRSG | N/A | N/A |
| Rentech Boiler 1 | 48 | 100.00% |
| Rentech Boiler 2 | 48 | 100.00% |
| Pilot 1 | N/A | N/A |
| Pilot 2 | N/A | N/A |
| *ULSD - Ultra low sulfur diesel | | |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Units Being Decommissioned as part of the NextGen Project**

## 2. FACILITY INVENTORY LIST

| Emissions Unit Number | MDE – ARA Registration Number | Emissions Unit Name and Description | Date of Installation |
|---|---|---|---|
| **Central Heating Plant (CHP), Building #001** | | | |
| EU #001-7 | 9-1081 | One (1) GE model PGT-10B/1, NG/No.2 fuel oil fired 11.2 Mwe – 16,200 bhp combustion turbine equipped with a 126 MMBtu/hr. duct burner | January 2004 |
| EU #001-8 | 9-1082 | One (1) GE model PGT-10B/1, NG/No.2 fuel oil fired 11.2 Mwe – 16,200 bhp combustion turbine equipped with a 126 MMBtu/hr. duct burner | January 2004 |
| EU #001-2 | 5-0256 | One (1) NG/No. 2 fuel oil during curtailment/supply interruptions/startup/testing/training only fired 157 MMBtu/hr. Union Iron boiler | 1976 |
| EU #001-4 | 5-0159 | One (1) NG/No. 2 fuel oil during curtailment/supply interruptions/startup/testing/training only fired 117 MMBtu/hr. Union Iron boiler | 1966 |
| EU #001-6 | 9-1083 | One (1) diesel-fired 1,109 bhp, 780 kWe, Caterpillar emergency generator set | 2004 |
| EU-#001-9 | 5-1665 | One (1) Wabash NG/No. 2 fuel oil during curtailment/supply interruptions/startup/testing/training only fired boiler rated at 95 MMBtu/hr. mobile boiler | 2020 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Historical Emissions Summary**

| | | Rolling Annualized Emissions over past 24 months (Tons) | | | | | | | | | | | | Monthly Emissions (Tons) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Year | $NO_X$ | $NO_2$ | CO | $SO_2$ | VOC | PM (Filt) | $PM_{10}$ (Total) | $PM_{2.5}$ (Total) | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ | $NO_X$ | $NO_2$ | CO | $SO_2$ | VOC | PM (Filt) | $PM_{10}$ (Total) | $PM_{2.5}$ (Total) | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| January | 2020 | | | | | | | | | | | | | 7.3 | 7.3 | 0.1 | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 8,327 | 0.16 | 0.02 | 8,336 |
| February | 2020 | | | | | | | | | | | | | 7.8 | 7.8 | 0.7 | 0.3 | 0.2 | 0.4 | 0.4 | 0.4 | 9,215 | 0.17 | 0.02 | 9,225 |
| March | 2020 | | | | | | | | | | | | | 6.1 | 6.1 | 0.9 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 7,976 | 0.15 | 0.02 | 7,984 |
| April | 2020 | | | | | | | | | | | | | 6.2 | 6.2 | 0.9 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 7,757 | 0.15 | 0.01 | 7,765 |
| May | 2020 | | | | | | | | | | | | | 5.9 | 5.9 | 0.8 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 7,051 | 0.13 | 0.01 | 7,058 |
| June | 2020 | | | | | | | | | | | | | 4.7 | 4.7 | 0.5 | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 4,293 | 0.08 | 0.01 | 4,297 |
| July | 2020 | | | | | | | | | | | | | 4.0 | 4.0 | 0.1 | 0.1 | 0.0 | 0.3 | 0.3 | 0.3 | 4,319 | 0.08 | 0.01 | 4,324 |
| August | 2020 | | | | | | | | | | | | | 10.0 | 10.0 | 0.5 | 0.2 | 0.1 | 0.6 | 0.6 | 0.6 | 10,651 | 0.20 | 0.02 | 10,662 |
| September | 2020 | | | | | | | | | | | | | 6.8 | 6.8 | 0.8 | 0.4 | 0.2 | 0.4 | 0.4 | 0.4 | 8,229 | 0.16 | 0.02 | 8,239 |
| October | 2020 | | | | | | | | | | | | | 9.6 | 9.6 | 1.0 | 0.5 | 0.2 | 0.6 | 0.6 | 0.6 | 11,374 | 0.24 | 0.03 | 11,389 |
| November | 2020 | | | | | | | | | | | | | 11.6 | 11.6 | 0.9 | 0.5 | 0.2 | 0.4 | 0.4 | 0.4 | 12,341 | 0.23 | 0.02 | 12,353 |
| December | 2020 | | | | | | | | | | | | | 13.4 | 13.4 | 1.0 | 0.6 | 0.2 | 0.8 | 0.8 | 0.8 | 15,528 | 0.31 | 0.03 | 15,546 |
| January | 2021 | | | | | | | | | | | | | 13.8 | 13.8 | 1.0 | 0.6 | 0.2 | 0.6 | 0.6 | 0.6 | 15,573 | 0.29 | 0.03 | 15,589 |
| February | 2021 | | | | | | | | | | | | | 11.3 | 11.3 | 0.9 | 0.5 | 0.2 | 0.5 | 0.5 | 0.5 | 13,042 | 0.25 | 0.02 | 13,056 |
| March | 2021 | | | | | | | | | | | | | 12.1 | 12.1 | 0.9 | 0.6 | 0.2 | 0.5 | 0.5 | 0.5 | 12,892 | 0.24 | 0.02 | 12,905 |
| April | 2021 | | | | | | | | | | | | | 8.3 | 8.3 | 0.5 | 0.3 | 0.1 | 0.4 | 0.4 | 0.4 | 9,078 | 0.17 | 0.02 | 9,088 |
| May | 2021 | | | | | | | | | | | | | 10.4 | 10.4 | 0.8 | 0.5 | 0.2 | 0.4 | 0.4 | 0.4 | 10,478 | 0.20 | 0.02 | 10,489 |
| June | 2021 | | | | | | | | | | | | | 11.5 | 11.5 | 0.8 | 0.5 | 0.2 | 0.4 | 0.4 | 0.4 | 11,509 | 0.22 | 0.02 | 11,521 |
| July | 2021 | | | | | | | | | | | | | 8.9 | 8.9 | 0.8 | 0.4 | 0.2 | 0.4 | 0.4 | 0.4 | 9,651 | 0.18 | 0.02 | 9,661 |
| August | 2021 | | | | | | | | | | | | | 7.6 | 7.6 | 0.3 | 0.3 | 0.1 | 0.4 | 0.4 | 0.4 | 8,550 | 0.16 | 0.02 | 8,559 |
| September | 2021 | | | | | | | | | | | | | 6.8 | 6.8 | 0.3 | 0.3 | 0.1 | 0.3 | 0.3 | 0.3 | 8,014 | 0.15 | 0.02 | 8,022 |
| October | 2021 | | | | | | | | | | | | | 6.2 | 6.2 | 0.1 | 0.1 | 0.0 | 0.5 | 0.5 | 0.5 | 6,922 | 0.13 | 0.01 | 6,930 |
| November | 2021 | | | | | | | | | | | | | 8.9 | 8.9 | 0.3 | 0.3 | 0.1 | 0.6 | 0.6 | 0.6 | 10,049 | 0.20 | 0.02 | 10,060 |
| December | 2021 | 104.0 | 104.0 | 7.9 | 4.1 | 1.8 | 5.1 | 5.1 | 5.1 | 116,243 | 2.2 | 0.2 | 116,366 | 8.7 | 8.7 | 0.8 | 0.4 | 0.2 | 0.3 | 0.3 | 0.3 | 9,667 | 0.18 | 0.02 | 9,677 |
| January | 2022 | 106.7 | 106.7 | 8.3 | 4.3 | 1.9 | 5.1 | 5.1 | 5.1 | 119,380 | 2.3 | 0.2 | 119,507 | 12.7 | 12.7 | 1.0 | 0.6 | 0.3 | 0.6 | 0.6 | 0.6 | 14,602 | 0.28 | 0.03 | 14,617 |
| February | 2022 | 108.5 | 108.5 | 8.4 | 4.5 | 2.0 | 5.2 | 5.2 | 5.2 | 121,119 | 2.3 | 0.2 | 121,248 | 11.5 | 11.5 | 0.9 | 0.5 | 0.2 | 0.5 | 0.5 | 0.5 | 12,694 | 0.24 | 0.03 | 12,707 |
| March | 2022 | 110.8 | 110.8 | 8.5 | 4.5 | 2.0 | 5.4 | 5.4 | 5.4 | 123,139 | 2.4 | 0.2 | 123,271 | 10.6 | 10.6 | 0.9 | 0.4 | 0.2 | 0.5 | 0.5 | 0.5 | 12,016 | 0.23 | 0.02 | 12,029 |
| April | 2022 | 110.7 | 110.7 | 8.1 | 4.5 | 1.9 | 5.4 | 5.4 | 5.4 | 122,947 | 2.4 | 0.2 | 123,078 | 6.0 | 6.0 | 0.2 | 0.2 | 0.1 | 0.3 | 0.3 | 0.3 | 7,372 | 0.14 | 0.01 | 7,379 |
| May | 2022 | 111.3 | 111.3 | 7.9 | 4.5 | 1.9 | 5.5 | 5.5 | 5.5 | 123,621 | 2.4 | 0.2 | 123,753 | 7.1 | 7.1 | 0.4 | 0.3 | 0.1 | 0.3 | 0.3 | 0.3 | 8,400 | 0.16 | 0.02 | 8,408 |
| June | 2022 | 114.6 | 114.6 | 8.1 | 4.7 | 1.9 | 5.5 | 5.5 | 5.5 | 127,205 | 2.4 | 0.3 | 127,341 | 11.5 | 11.5 | 0.8 | 0.5 | 0.2 | 0.4 | 0.4 | 0.4 | 11,461 | 0.22 | 0.02 | 11,473 |
| July | 2022 | 118.3 | 118.3 | 8.4 | 4.9 | 2.0 | 5.7 | 5.7 | 5.7 | 130,965 | 2.5 | 0.3 | 131,104 | 11.3 | 11.3 | 0.7 | 0.4 | 0.2 | 0.5 | 0.5 | 0.5 | 11,838 | 0.22 | 0.02 | 11,851 |
| **August** | **2022** | **119.1** | **119.1** | **8.54** | **5.1** | **2.0** | **5.6** | **5.6** | **5.6** | **131,433** | **2.5** | **0.3** | **131,572** | 11.6 | 11.6 | 0.8 | 0.5 | 0.2 | 0.4 | 0.4 | 0.4 | 11,586 | 0.22 | 0.02 | 11,598 |
| September | 2022 | 120.1 | 120.1 | 8.3 | 5.0 | 2.0 | 5.6 | 5.6 | 5.6 | 131,993 | 2.5 | 0.3 | 132,133 | 8.7 | 8.7 | 0.4 | 0.2 | 0.1 | 0.5 | 0.5 | 0.5 | 9,351 | 0.18 | 0.02 | 9,360 |
| October | 2022 | 120.9 | 120.9 | 7.9 | 4.8 | 1.9 | 5.7 | 5.7 | 5.7 | 132,741 | 2.5 | 0.3 | 132,880 | 11.2 | 11.2 | 0.2 | 0.1 | 0.0 | 0.8 | 0.8 | 0.8 | 12,869 | 0.24 | 0.02 | 12,882 |
| November | 2022 | 117.6 | 117.6 | 7.6 | 4.5 | 1.8 | 5.7 | 5.7 | 5.7 | 129,618 | 2.5 | 0.3 | 129,754 | 5.1 | 5.1 | 0.1 | 0.1 | 0.0 | 0.5 | 0.5 | 0.5 | 6,095 | 0.12 | 0.01 | 6,102 |
| December | 2022 | 122.6 | 122.6 | 7.5 | 4.4 | 1.8 | 6.0 | 6.0 | 6.0 | 134,901 | 2.6 | 0.3 | 135,042 | 23.3 | 23.3 | 1.0 | 0.4 | 0.2 | 1.3 | 1.3 | 1.3 | 26,094 | 0.49 | 0.05 | 26,121 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | Natural Gas (MMBtu) | | | | | | | | | Total Natural Gas (MMBtu) | Carbon Dioxide ($CO_2$) | Methane ($CH_4$) | Nitrous Oxide ($N_2O$) | Carbon Dioxide ($CO_2$) | Methane ($CH_4$) | Nitrous Oxide ($N_2O$) | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler | | kg / MMBtu | kg / MMBtu | kg / MMBtu | tons / month | tons / month | tons / month | tons / month |
| January | 2020 | 0.00 | 2060.52 | 0.00 | 0.00 | 72701.89 | 67610.21 | -- | 2.92 | -- | 142375.54 | 53.06 | 0.0010 | 0.0001 | 8,327 | 0.16 | 0.02 | 8,336 |
| February | 2020 | 0.00 | 79092.65 | 0.00 | 30290.71 | 46916.09 | 1213.30 | -- | 8.63 | -- | 157521.38 | 53.06 | 0.0010 | 0.0001 | 9,213 | 0.17 | 0.02 | 9,223 |
| March | 2020 | 0.00 | 89470.56 | 0.00 | 46283.29 | 131.79 | 425.70 | -- | 49.95 | -- | 136361.29 | 53.06 | 0.0010 | 0.0001 | 7,976 | 0.15 | 0.02 | 7,984 |
| April | 2020 | 0.00 | 89913.00 | 0.00 | 41430.08 | 511.47 | 759.36 | -- | 5.20 | -- | 132619.11 | 53.06 | 0.0010 | 0.0001 | 7,757 | 0.15 | 0.01 | 7,765 |
| May | 2020 | 0.00 | 80599.86 | 0.00 | 31191.27 | 4691.09 | 4065.61 | -- | 2.74 | -- | 120550.57 | 53.06 | 0.0010 | 0.0001 | 7,051 | 0.13 | 0.01 | 7,058 |
| June | 2020 | 0.00 | 32183.88 | 0.00 | 2604.42 | 22755.69 | 15327.35 | -- | 5.90 | -- | 72877.24 | 53.06 | 0.0010 | 0.0001 | 4,262 | 0.08 | 0.01 | 4,267 |
| July | 2020 | 0.00 | 14214.46 | 0.00 | 0.00 | 31138.98 | 28497.95 | -- | 0.20 | -- | 73851.59 | 53.06 | 0.0010 | 0.0001 | 4,319 | 0.08 | 0.01 | 4,324 |
| August | 2020 | 0.00 | 56826.46 | 0.00 | 1893.17 | 88647.40 | 34732.86 | -- | 0.46 | -- | 182100.35 | 53.06 | 0.0010 | 0.0001 | 10,651 | 0.20 | 0.02 | 10,662 |
| September | 2020 | 0.00 | 81489.96 | 0.00 | 32748.69 | 19345.89 | 603.51 | -- | 0.17 | -- | 134188.22 | 53.06 | 0.0010 | 0.0001 | 7,848 | 0.15 | 0.01 | 7,857 |
| October | 2020 | 42612.00 | 93131.39 | 0.00 | 27194.70 | 7982.69 | 1.05 | -- | 0.71 | -- | 170922.54 | 53.06 | 0.0010 | 0.0001 | 9,997 | 0.19 | 0.02 | 10,007 |
| November | 2020 | 86071.23 | 89878.48 | 0.00 | 27801.35 | 6322.77 | 605.61 | -- | 0.21 | -- | 210679.65 | 53.06 | 0.0010 | 0.0001 | 12,322 | 0.23 | 0.02 | 12,335 |
| December | 2020 | 76553.08 | 91353.27 | 6976.49 | 31681.83 | 44251.01 | 1330.45 | -- | 0.49 | -- | 252146.62 | 53.06 | 0.0010 | 0.0001 | 14,748 | 0.28 | 0.03 | 14,763 |
| January | 2021 | 93330.12 | 87525.10 | 12593.24 | 27895.49 | 44118.17 | 684.05 | -- | -- | 0.29 | 266146.46 | 53.06 | 0.0010 | 0.0001 | 15,567 | 0.29 | 0.03 | 15,583 |
| February | 2021 | 67934.45 | 79126.12 | 13053.46 | 27717.68 | 29607.71 | 5547.72 | -- | -- | 0.12 | 222987.26 | 53.06 | 0.0010 | 0.0001 | 13,042 | 0.25 | 0.02 | 13,056 |
| March | 2021 | 90893.06 | 92085.44 | 8137.49 | 18952.61 | 9496.18 | 848.27 | -- | -- | 0.16 | 220413.21 | 53.06 | 0.0010 | 0.0001 | 12,892 | 0.24 | 0.02 | 12,905 |
| April | 2021 | 71312.87 | 36399.06 | 15281.33 | 3116.93 | 22731.63 | 6369.84 | -- | -- | 1.17 | 155212.83 | 53.06 | 0.0010 | 0.0001 | 9,078 | 0.17 | 0.02 | 9,088 |
| May | 2021 | 89909.86 | 71009.55 | 15145.36 | 993.65 | 324.24 | 1655.74 | -- | -- | 1.91 | 179040.31 | 53.06 | 0.0010 | 0.0001 | 10,472 | 0.20 | 0.02 | 10,483 |
| June | 2021 | 89271.83 | 81866.51 | 10103.88 | 407.92 | 1199.70 | 13927.87 | -- | -- | 0.19 | 196777.90 | 53.06 | 0.0010 | 0.0001 | 11,509 | 0.22 | 0.02 | 11,521 |
| July | 2021 | 30081.52 | 90181.81 | 2552.12 | 19642.94 | 21095.77 | 1447.59 | -- | -- | 0.38 | 165002.13 | 53.06 | 0.0010 | 0.0001 | 9,651 | 0.18 | 0.02 | 9,661 |
| August | 2021 | 93235.98 | 10815.12 | 20385.57 | 0.00 | 21505.78 | 233.25 | -- | -- | 0.13 | 146175.83 | 53.06 | 0.0010 | 0.0001 | 8,550 | 0.16 | 0.02 | 8,558 |
| September | 2021 | 90171.35 | 0.00 | 23774.44 | 0.00 | 22675.15 | 391.19 | -- | -- | 0.19 | 137012.32 | 53.06 | 0.0010 | 0.0001 | 8,014 | 0.15 | 0.02 | 8,022 |
| October | 2021 | 16128.55 | 0.00 | 1589.84 | 0.00 | 71028.37 | 26913.34 | -- | -- | 0.20 | 115660.30 | 53.06 | 0.0010 | 0.0001 | 6,765 | 0.13 | 0.01 | 6,772 |
| November | 2021 | 57569.09 | 9047.47 | 7196.14 | 313.79 | 60489.38 | 30498.86 | -- | -- | 2.16 | 165116.89 | 53.06 | 0.0010 | 0.0001 | 9,657 | 0.18 | 0.02 | 9,667 |
| December | 2021 | 25186.48 | 88246.80 | 7813.25 | 19067.67 | 4858.44 | 19950.45 | -- | -- | 1.04 | 165124.13 | 53.06 | 0.0010 | 0.0001 | 9,658 | 0.18 | 0.02 | 9,668 |
| January | 2022 | 90830.30 | 78906.47 | 19287.32 | 26159.21 | 13522.04 | 19947.31 | -- | -- | 2.39 | 248655.04 | 53.06 | 0.0010 | 0.0001 | 14,543 | 0.27 | 0.03 | 14,558 |
| February | 2022 | 72222.85 | 82222.13 | 14768.81 | 17707.93 | 693.46 | 26055.66 | -- | -- | 1.33 | 213672.17 | 53.06 | 0.0010 | 0.0001 | 12,497 | 0.24 | 0.02 | 12,510 |
| March | 2022 | 45488.37 | 77442.14 | 9037.01 | 23397.90 | 14631.79 | 35450.38 | -- | -- | 2.28 | 205449.87 | 53.06 | 0.0010 | 0.0001 | 12,016 | 0.23 | 0.02 | 12,029 |
| April | 2022 | 52862.31 | 0.00 | 20626.13 | 0.00 | 21590.50 | 30511.41 | -- | -- | 448.71 | 126039.06 | 53.06 | 0.0010 | 0.0001 | 7,372 | 0.14 | 0.01 | 7,379 |
| May | 2022 | 76385.73 | 22833.09 | 18398.26 | 11306.72 | 11211.54 | 3236.17 | -- | -- | 240.57 | 143612.08 | 53.06 | 0.0010 | 0.0001 | 8,400 | 0.16 | 0.02 | 8,408 |
| June | 2022 | 87525.10 | 90192.27 | 12844.27 | 1004.11 | 2528.69 | 1716.09 | -- | -- | 138.07 | 195948.60 | 53.06 | 0.0010 | 0.0001 | 11,461 | 0.22 | 0.02 | 11,473 |
| July | 2022 | 86897.53 | 51345.69 | 18105.39 | 0.00 | 21367.71 | 24054.85 | -- | -- | 293.91 | 202065.08 | 53.06 | 0.0010 | 0.0001 | 11,818 | 0.22 | 0.02 | 11,831 |
| August | 2022 | 86426.85 | 91499.71 | 12342.21 | 1265.60 | 3129.48 | 3032.21 | -- | -- | 116.10 | 197812.16 | 53.06 | 0.0010 | 0.0001 | 11,570 | 0.22 | 0.02 | 11,582 |
| September | 2022 | 29401.65 | 33104.32 | 4633.56 | 10.46 | 52251.48 | 40245.02 | -- | -- | 226.97 | 159873.46 | 53.06 | 0.0010 | 0.0001 | 9,351 | 0.18 | 0.02 | 9,360 |
| October | 2022 | 0.00 | 0.00 | 0.00 | 0.00 | 73768.76 | 144089.03 | -- | -- | 2167.21 | 220025.00 | 53.06 | 0.0010 | 0.0001 | 12,869 | 0.24 | 0.02 | 12,882 |
| November | 2022 | 0.00 | 0.00 | 0.00 | 0.00 | 80269.34 | 15230.08 | -- | -- | 3449.54 | 98948.96 | 53.06 | 0.0010 | 0.0001 | 5,787 | 0.11 | 0.01 | 5,793 |
| December | 2022 | 26023.24 | 64357.30 | 0.00 | 13231.27 | 47932.75 | 289254.33 | -- | -- | 2976.77 | 443775.66 | 53.06 | 0.0010 | 0.0001 | 25,956 | 0.49 | 0.05 | 25,983 |

| Month | Year | Fuel Oil (MMBtu) | | | | | | | | | Total Fuel Oil (MMBtu) | Carbon Dioxide ($CO_2$) | Methane ($CH_4$) | Nitrous Oxide ($N_2O$) | Carbon Dioxide ($CO_2$) | Methane ($CH_4$) | Nitrous Oxide ($N_2O$) | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler | | kg / MMBtu | kg / MMBtu | kg / MMBtu | tons / month | tons / month | tons / month | tons / month |
| January | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| February | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 27.17 | -- | -- | 27.17 | 73.96 | 0.003 | 0.0006 | 2 | 0.000 | 0.000 | 2 |
| March | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| April | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| May | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| June | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 374.18 | 0.00 | -- | 374.18 | 73.96 | 0.003 | 0.0006 | 31 | 0.001 | 0.000 | 31 |
| July | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| August | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | 0.00 | -- | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| September | 2020 | 0.00 | 0.00 | -- | -- | 556.20 | 4112.94 | 0.00 | 0.00 | -- | 4669.14 | 73.96 | 0.003 | 0.0006 | 381 | 0.015 | 0.003 | 382 |
| October | 2020 | 0.00 | 0.00 | -- | -- | 5039.75 | 0.00 | 0.00 | 11849.00 | -- | 16888.75 | 73.96 | 0.003 | 0.0006 | 1,377 | 0.056 | 0.011 | 1,382 |
| November | 2020 | 0.00 | 0.00 | -- | -- | 0.00 | 223.39 | 0.00 | 0.00 | -- | 223.39 | 73.96 | 0.003 | 0.0006 | 18 | 0.001 | 0.000 | 18 |
| December | 2020 | 0.00 | 0.00 | -- | -- | 2826.91 | 1975.98 | 0.00 | 4765.00 | -- | 9567.89 | 73.96 | 0.003 | 0.0006 | 780 | 0.032 | 0.006 | 783 |
| January | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 69.56 | 3.88 | -- | 0.00 | 73.44 | 73.96 | 0.003 | 0.0006 | 6 | 0.000 | 0.000 | 6 |
| February | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| March | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| April | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| May | 2021 | 0.00 | 0.00 | -- | -- | 2.47 | 0.00 | 77.63 | -- | 0.00 | 80.10 | 73.96 | 0.003 | 0.0006 | 7 | 0.000 | 0.000 | 7 |
| June | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| July | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| August | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 5.43 | -- | 0.00 | 5.43 | 73.96 | 0.003 | 0.0006 | 0 | 0.000 | 0.000 | 0 |
| September | 2021 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| October | 2021 | 0.00 | 0.00 | -- | -- | 1.65 | 0.00 | 139.73 | -- | 1791.00 | 1932.38 | 73.96 | 0.003 | 0.0006 | 158 | 0.006 | 0.001 | 158 |
| November | 2021 | 0.00 | 0.00 | -- | -- | 592.49 | 480.32 | 0.00 | -- | 3725.00 | 4797.81 | 73.96 | 0.003 | 0.0006 | 391 | 0.016 | 0.003 | 392 |
| December | 2021 | 0.00 | 0.00 | -- | -- | 111.07 | 1.65 | 0.00 | -- | 0.00 | 112.72 | 73.96 | 0.003 | 0.0006 | 9 | 0.000 | 0.000 | 9 |
| January | 2022 | 0.00 | 0.00 | -- | -- | 586.17 | 132.93 | 0.00 | -- | 0.00 | 719.10 | 73.96 | 0.003 | 0.0006 | 59 | 0.002 | 0.000 | 59 |
| February | 2022 | 0.00 | 0.00 | -- | -- | 1451.12 | 942.35 | 0.00 | -- | 14.00 | 2407.47 | 73.96 | 0.003 | 0.0006 | 196 | 0.008 | 0.002 | 197 |
| March | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| April | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| May | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.004 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0.000 | 0.000 | 0 |
| June | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.004 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0.000 | 0.000 | 0 |
| July | 2022 | 0.00 | 0.00 | -- | -- | 6.19 | 72.03 | 164.96 | -- | 0.00 | 243.18 | 73.96 | 0.003 | 0.0006 | 20 | 0.001 | 0.000 | 20 |
| August | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.004 | -- | 202.71 | 202.71 | 73.96 | 0.003 | 0.0006 | 17 | 0.001 | 0.000 | 17 |
| September | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.194 | -- | 0.00 | 0.19 | 73.96 | 0.003 | 0.0006 | 0 | 0.000 | 0.000 | 0 |
| October | 2022 | 0.00 | 0.00 | -- | -- | 0.00 | 0.00 | 0.00 | -- | 0.00 | 0.00 | 73.96 | 0.003 | 0.0006 | 0 | 0 | 0 | 0 |
| November | 2022 | 0.00 | 0.00 | -- | -- | 238.10 | 740.13 | 6.599 | -- | 2784.00 | 3768.83 | 73.96 | 0.003 | 0.0006 | 307 | 0.012 | 0.002 | 308 |
| December | 2022 | 0.00 | 0.00 | -- | -- | 508.91 | 392.20 | 6.599 | -- | 789.00 | 1696.71 | 73.96 | 0.003 | 0.0006 | 138 | 0.006 | 0.001 | 139 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | NOx | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.1329 | 0 | 0 | 3.695 | 3.4639 | 0 | -- | -- |
| February | 2020 | 0 | 5.1015 | 0 | 0.1969 | 2.3845 | 0.0622 | 0.0435 | -- | -- |
| March | 2020 | 0 | 5.7709 | 0 | 0.3008 | 0.0067 | 0.0218 | 0 | -- | -- |
| April | 2020 | 0 | 5.7994 | 0 | 0.2693 | 0.026 | 0.0389 | 0 | 0.0978 | -- |
| May | 2020 | 0 | 5.1987 | 0 | 0.2027 | 0.2384 | 0.2083 | 0 | 0.0516 | -- |
| June | 2020 | 0 | 2.0759 | 0 | 0.0169 | 1.1565 | 0.7853 | 0.5987 | 0.1111 | -- |
| July | 2020 | 0 | 0.9168 | 0 | 0 | 1.5826 | 1.46 | 0 | 0.0037 | -- |
| August | 2020 | 0 | 3.6653 | 0 | 0.0123 | 4.5054 | 1.7795 | 0 | 0.0086 | -- |
| September | 2020 | 0 | 5.2561 | 0 | 0.2129 | 1.0172 | 0.2997 | 0 | 0.0033 | -- |
| October | 2020 | 2.578 | 6.007 | 0 | 0.1768 | 0.7131 | 0.0001 | 0 | 0.0948 | -- |
| November | 2020 | 5.2073 | 5.7972 | 0 | 0.1807 | 0.3213 | 0.0456 | 0 | 0.0039 | -- |
| December | 2020 | 4.6315 | 5.8923 | 0.0453 | 0.2059 | 2.4214 | 0.1973 | 0 | 0.042 | -- |
| January | 2021 | 5.6465 | 5.6454 | 0.0819 | 0.1813 | 2.2423 | 0.0396 | 0.0062 | -- | 0.0055 |
| February | 2021 | 4.11 | 5.1036 | 0.0848 | 0.1802 | 1.5048 | 0.2842 | 0 | -- | 0.0022 |
| March | 2021 | 5.499 | 5.9395 | 0.0529 | 0.1232 | 0.4826 | 0.0435 | 0 | -- | 0.003 |
| April | 2021 | 4.3144 | 2.3477 | 0.0993 | 0.0203 | 1.1553 | 0.3263 | 0 | -- | 0.022 |
| May | 2021 | 5.4395 | 4.5801 | 0.0984 | 0.0065 | 0.0166 | 0.0848 | 0.1242 | -- | 0.036 |
| June | 2021 | 5.4009 | 5.2804 | 0.0657 | 0.0027 | 0.061 | 0.7136 | 0 | -- | 0.0036 |
| July | 2021 | 1.8199 | 5.8167 | 0.0166 | 0.1277 | 1.0722 | 0.0742 | 0 | -- | 0.0071 |
| August | 2021 | 5.6408 | 0.6976 | 0.1325 | 0 | 1.093 | 0.0119 | 0.0087 | -- | 0.0025 |
| September | 2021 | 5.4554 | 0 | 0.1545 | 0 | 1.1524 | 0.02 | 0 | -- | 0.0036 |
| October | 2021 | 0.9758 | 0 | 0.0103 | 0 | 3.61 | 1.3789 | 0.2236 | -- | 0.0284 |
| November | 2021 | 3.4829 | 0.5836 | 0.0468 | 0.002 | 3.1104 | 1.5939 | 0 | -- | 0.0918 |
| December | 2021 | 1.5238 | 5.6919 | 0.0508 | 0.1239 | 0.2537 | 1.0222 | 0 | -- | 0.0195 |
| January | 2022 | 5.5176 | 5.1101 | 0.1259 | 0.1707 | 0.7258 | 1.0348 | 0 | -- | 0.0453 |
| February | 2022 | 4.3872 | 5.3249 | 0.0964 | 0.1156 | 0.1239 | 1.4019 | 0 | -- | 0.0254 |
| March | 2022 | 2.7632 | 5.0153 | 0.059 | 0.1527 | 0.7467 | 1.8236 | 0 | -- | 0.043 |
| April | 2022 | 3.2112 | 0 | 0.1346 | 0 | 1.1018 | 1.5695 | 0 | -- | 0.0081 |
| May | 2022 | 4.6401 | 1.4787 | 0.1201 | 0.0738 | 0.5721 | 0.1665 | 0 | -- | 0.0043 |
| June | 2022 | 5.3168 | 5.841 | 0.0838 | 0.0066 | 0.129 | 0.0883 | 0 | -- | 0.0025 |
| July | 2022 | 5.2787 | 3.3253 | 0.1182 | 0 | 1.0908 | 1.2421 | 0.2639 | -- | 0.0053 |
| August | 2022 | 5.2501 | 5.9257 | 0.0806 | 0.0083 | 0.1597 | 0.156 | 0 | -- | 0.0049 |
| September | 2022 | 1.786 | 2.1439 | 0.0302 | 0.0001 | 2.6664 | 2.0703 | 0.0003 | -- | 0.0041 |
| October | 2022 | 0 | 0 | 0 | 0 | 3.7645 | 7.4121 | 0 | -- | 0.0392 |
| November | 2022 | 0 | 0 | 0 | 0 | 4.1107 | 0.8318 | 0.0106 | -- | 0.1006 |
| December | 2022 | 1.5808 | 4.1679 | 0 | 0.0864 | 2.4771 | 14.9053 | 0.0106 | -- | 0.0646 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | NO2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.1329 | 0 | 0 | 3.695 | 3.4639 | 0 | -- | -- |
| February | 2020 | 0 | 5.1015 | 0 | 0.1969 | 2.3845 | 0.0622 | 0.0435 | -- | -- |
| March | 2020 | 0 | 5.7709 | 0 | 0.3008 | 0.0067 | 0.0218 | 0 | -- | -- |
| April | 2020 | 0 | 5.7994 | 0 | 0.2693 | 0.026 | 0.0389 | 0 | 0.0978 | -- |
| May | 2020 | 0 | 5.1987 | 0 | 0.2027 | 0.2384 | 0.2083 | 0 | 0.0516 | -- |
| June | 2020 | 0 | 2.0759 | 0 | 0.0169 | 1.1565 | 0.7853 | 0.5987 | 0.1111 | -- |
| July | 2020 | 0 | 0.9168 | 0 | 0 | 1.5826 | 1.46 | 0 | 0.0037 | -- |
| August | 2020 | 0 | 3.6653 | 0 | 0.0123 | 4.5054 | 1.7795 | 0 | 0.0086 | -- |
| September | 2020 | 0 | 5.2561 | 0 | 0.2129 | 1.0172 | 0.2997 | 0 | 0.0033 | -- |
| October | 2020 | 2.578 | 6.007 | 0 | 0.1768 | 0.7131 | 0.0001 | 0 | 0.0948 | -- |
| November | 2020 | 5.2073 | 5.7972 | 0 | 0.1807 | 0.3213 | 0.0456 | 0 | 0.0039 | -- |
| December | 2020 | 4.6315 | 5.8923 | 0.0453 | 0.2059 | 2.4214 | 0.1973 | 0 | 0.042 | -- |
| January | 2021 | 5.6465 | 5.6454 | 0.0819 | 0.1813 | 2.2423 | 0.0396 | 0.0062 | -- | 0.0055 |
| February | 2021 | 4.11 | 5.1036 | 0.0848 | 0.1802 | 1.5048 | 0.2842 | 0 | -- | 0.0022 |
| March | 2021 | 5.499 | 5.9395 | 0.0529 | 0.1232 | 0.4826 | 0.0435 | 0 | -- | 0.003 |
| April | 2021 | 4.3144 | 2.3477 | 0.0993 | 0.0203 | 1.1553 | 0.3263 | 0 | -- | 0.022 |
| May | 2021 | 5.4395 | 4.5801 | 0.0984 | 0.0065 | 0.0166 | 0.0848 | 0.1242 | -- | 0.036 |
| June | 2021 | 5.4009 | 5.2804 | 0.0657 | 0.0027 | 0.061 | 0.7136 | 0 | -- | 0.0036 |
| July | 2021 | 1.8199 | 5.8167 | 0.0166 | 0.1277 | 1.0722 | 0.0742 | 0 | -- | 0.0071 |
| August | 2021 | 5.6408 | 0.6976 | 0.1325 | 0 | 1.093 | 0.0119 | 0.0087 | -- | 0.0025 |
| September | 2021 | 5.4554 | 0 | 0.1545 | 0 | 1.1524 | 0.02 | 0 | -- | 0.0036 |
| October | 2021 | 0.9758 | 0 | 0.0103 | 0 | 3.61 | 1.3789 | 0.2236 | -- | 0.0284 |
| November | 2021 | 3.4829 | 0.5836 | 0.0468 | 0.002 | 3.1104 | 1.5939 | 0 | -- | 0.0918 |
| December | 2021 | 1.5238 | 5.6919 | 0.0508 | 0.1239 | 0.2537 | 1.0222 | 0 | -- | 0.0195 |
| January | 2022 | 5.5176 | 5.1101 | 0.1259 | 0.1707 | 0.7258 | 1.0348 | 0 | -- | 0.0453 |
| February | 2022 | 4.3872 | 5.3249 | 0.0964 | 0.1156 | 0.1239 | 1.4019 | 0 | -- | 0.0254 |
| March | 2022 | 2.7632 | 5.0153 | 0.059 | 0.1527 | 0.7467 | 1.8236 | 0 | -- | 0.043 |
| April | 2022 | 3.2112 | 0 | 0.1346 | 0 | 1.1018 | 1.5695 | 0 | -- | 0.0081 |
| May | 2022 | 4.6401 | 1.4787 | 0.1201 | 0.0738 | 0.5721 | 0.1665 | 0 | -- | 0.0043 |
| June | 2022 | 5.3168 | 5.841 | 0.0838 | 0.0066 | 0.129 | 0.0883 | 0 | -- | 0.0025 |
| July | 2022 | 5.2787 | 3.3253 | 0.1182 | 0 | 1.0908 | 1.2421 | 0.2639 | -- | 0.0053 |
| August | 2022 | 5.2501 | 5.9257 | 0.0806 | 0.0083 | 0.1597 | 0.156 | 0 | -- | 0.0049 |
| September | 2022 | 1.786 | 2.1439 | 0.0302 | 0.0001 | 2.6664 | 2.0703 | 0.0003 | -- | 0.0041 |
| October | 2022 | 0 | 0 | 0 | 0 | 3.7645 | 7.4121 | 0 | -- | 0.0392 |
| November | 2022 | 0 | 0 | 0 | 0 | 4.1107 | 0.8318 | 0.0106 | -- | 0.1006 |
| December | 2022 | 1.5808 | 4.1679 | 0 | 0.0864 | 2.4771 | 14.9053 | 0.0106 | -- | 0.0646 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | CO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0144 | 0 | 0 | 0.0201 | 0.0731 | 0 | -- | -- |
| February | 2020 | 0 | 0.5536 | 0 | 0.1515 | 0.013 | 0.0013 | 0.0115 | -- | -- |
| March | 2020 | 0 | 0.6263 | 0 | 0.2314 | 0 | 0.0005 | 0 | -- | -- |
| April | 2020 | 0 | 0.6294 | 0 | 0.2072 | 0.0001 | 0.0008 | 0 | 0.1019 | -- |
| May | 2020 | 0 | 0.5642 | 0 | 0.156 | 0.0013 | 0.0044 | 0 | 0.0538 | -- |
| June | 2020 | 0 | 0.2253 | 0 | 0.013 | 0.0063 | 0.0166 | 0.159 | 0.1158 | -- |
| July | 2020 | 0 | 0.0995 | 0 | 0 | 0.0086 | 0.0308 | 0 | 0.0038 | -- |
| August | 2020 | 0 | 0.3978 | 0 | 0.0095 | 0.0245 | 0.0376 | 0 | 0.009 | -- |
| September | 2020 | 0 | 0.5704 | 0 | 0.1637 | 0.0115 | 0.0632 | 0 | 0.0034 | -- |
| October | 2020 | 0.0639 | 0.6519 | 0 | 0.136 | 0.0576 | 0 | 0 | 0.0444 | -- |
| November | 2020 | 0.1291 | 0.6291 | 0 | 0.139 | 0.0017 | 0.0041 | 0 | 0.0041 | -- |
| December | 2020 | 0.1148 | 0.6395 | 0.0349 | 0.1584 | 0.0433 | 0.0315 | 0 | 0.0219 | -- |
| January | 2021 | 0.14 | 0.6127 | 0.063 | 0.1395 | 0.0122 | 0.0018 | 0.0016 | -- | 0.0057 |
| February | 2021 | 0.1019 | 0.5539 | 0.0653 | 0.1386 | 0.0082 | 0.006 | 0 | -- | 0.0023 |
| March | 2021 | 0.1363 | 0.6446 | 0.0407 | 0.0948 | 0.0026 | 0.0009 | 0 | -- | 0.0031 |
| April | 2021 | 0.107 | 0.2548 | 0.0764 | 0.0156 | 0.0063 | 0.0069 | 0 | -- | 0.023 |
| May | 2021 | 0.1349 | 0.4971 | 0.0757 | 0.005 | 0.0001 | 0.0018 | 0.033 | -- | 0.0375 |
| June | 2021 | 0.1339 | 0.5731 | 0.0505 | 0.002 | 0.0003 | 0.0151 | 0 | -- | 0.0038 |
| July | 2021 | 0.0451 | 0.6313 | 0.0128 | 0.0982 | 0.0058 | 0.0016 | 0 | -- | 0.0074 |
| August | 2021 | 0.1399 | 0.0757 | 0.1019 | 0 | 0.0059 | 0.0003 | 0.0023 | -- | 0.0026 |
| September | 2021 | 0.1353 | 0 | 0.1189 | 0 | 0.0063 | 0.0004 | 0 | -- | 0.0038 |
| October | 2021 | 0.0242 | 0 | 0.0079 | 0 | 0.0196 | 0.0291 | 0.0594 | -- | 0.0086 |
| November | 2021 | 0.0864 | 0.0633 | 0.036 | 0.0016 | 0.0232 | 0.0403 | 0 | -- | 0.0519 |
| December | 2021 | 0.0378 | 0.6177 | 0.0391 | 0.0953 | 0.0026 | 0.0216 | 0 | -- | 0.0203 |
| January | 2022 | 0.1368 | 0.5546 | 0.0968 | 0.1313 | 0.0102 | 0.0237 | 0 | -- | 0.0471 |
| February | 2022 | 0.1088 | 0.5779 | 0.0741 | 0.0889 | 0.0161 | 0.0426 | 0 | -- | 0.0262 |
| March | 2022 | 0.0685 | 0.5443 | 0.0454 | 0.1175 | 0.0041 | 0.0385 | 0 | -- | 0.0448 |
| April | 2022 | 0.0796 | 0 | 0.1035 | 0 | 0.006 | 0.0331 | 0 | -- | 0.0084 |
| May | 2022 | 0.115 | 0.1605 | 0.0924 | 0.0568 | 0.0031 | 0.0035 | 0 | -- | 0.0045 |
| June | 2022 | 0.1318 | 0.6339 | 0.0645 | 0.005 | 0.0007 | 0.0019 | 0 | -- | 0.0026 |
| July | 2022 | 0.1309 | 0.3609 | 0.0909 | 0 | 0.006 | 0.0272 | 0.0701 | -- | 0.0055 |
| August | 2022 | 0.1302 | 0.6431 | 0.062 | 0.0064 | 0.0009 | 0.0033 | 0 | -- | 0.0027 |
| September | 2022 | 0.0443 | 0.2327 | 0.0233 | 0.0001 | 0.0145 | 0.0437 | 0.0001 | -- | 0.0043 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.0205 | 0.1565 | 0 | -- | 0.0408 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.0249 | 0.0278 | 0.0028 | -- | 0.0721 |
| December | 2022 | 0.0392 | 0.4523 | 0 | 0.0664 | 0.0189 | 0.3201 | 0.0028 | -- | 0.0581 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | SO2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0062 | 0 | 0 | 0.0214 | 0.0199 | 0 | -- | -- |
| February | 2020 | 0 | 0.2373 | 0 | 0.0089 | 0.0138 | 0.0004 | 0 | -- | -- |
| March | 2020 | 0 | 0.2684 | 0 | 0.0136 | 0 | 0.0001 | 0 | -- | -- |
| April | 2020 | 0 | 0.2697 | 0 | 0.0122 | 0.0002 | 0.0002 | 0 | 0.0016 | -- |
| May | 2020 | 0 | 0.2418 | 0 | 0.0092 | 0.0014 | 0.0012 | 0 | 0.0009 | -- |
| June | 2020 | 0 | 0.0966 | 0 | 0.0008 | 0.0067 | 0.0045 | 0.0003 | 0.0019 | -- |
| July | 2020 | 0 | 0.0426 | 0 | 0 | 0.0092 | 0.0084 | 0 | 0.0001 | -- |
| August | 2020 | 0 | 0.1705 | 0 | 0.0006 | 0.0261 | 0.0102 | 0 | 0.0001 | -- |
| September | 2020 | 0 | 0.2445 | 0 | 0.0096 | 0.018 | 0.0886 | 0 | 0.0001 | -- |
| October | 2020 | 0.1278 | 0.2794 | 0 | 0.008 | 0.1136 | 0 | 0 | 0.0015 | -- |
| November | 2020 | 0.2582 | 0.2696 | 0 | 0.0082 | 0.0019 | 0.005 | 0 | 0.0001 | -- |
| December | 2020 | 0.2297 | 0.2741 | 0.0021 | 0.0093 | 0.0754 | 0.0429 | 0 | 0.0007 | -- |
| January | 2021 | 0.28 | 0.2626 | 0.0037 | 0.0082 | 0.013 | 0.0017 | 0 | -- | 0.0001 |
| February | 2021 | 0.2038 | 0.2374 | 0.0038 | 0.0082 | 0.0087 | 0.0016 | 0 | -- | 0 |
| March | 2021 | 0.2727 | 0.2763 | 0.0024 | 0.0056 | 0.0028 | 0.0002 | 0 | -- | 0 |
| April | 2021 | 0.2139 | 0.1092 | 0.0045 | 0.0009 | 0.0067 | 0.0019 | 0 | -- | 0.0004 |
| May | 2021 | 0.2697 | 0.213 | 0.0045 | 0.0003 | 0.0001 | 0.0005 | 0.0001 | -- | 0.0006 |
| June | 2021 | 0.2678 | 0.2456 | 0.003 | 0.0001 | 0.0004 | 0.0041 | 0 | -- | 0.0001 |
| July | 2021 | 0.0902 | 0.2705 | 0.0008 | 0.0058 | 0.0062 | 0.0004 | 0 | -- | 0.0001 |
| August | 2021 | 0.2797 | 0.0324 | 0.006 | 0 | 0.0063 | 0.0001 | 0 | -- | 0 |
| September | 2021 | 0.2705 | 0 | 0.007 | 0 | 0.0067 | 0.0001 | 0 | -- | 0.0001 |
| October | 2021 | 0.0484 | 0 | 0.0005 | 0 | 0.0209 | 0.0079 | 0.0001 | -- | 0.0003 |
| November | 2021 | 0.1727 | 0.0271 | 0.0021 | 0.0001 | 0.0309 | 0.0193 | 0 | -- | 0.0011 |
| December | 2021 | 0.0756 | 0.2647 | 0.0023 | 0.0056 | 0.0039 | 0.0059 | 0 | -- | 0.0003 |
| January | 2022 | 0.2736 | 0.2377 | 0.0057 | 0.0077 | 0.0169 | 0.0087 | 0 | -- | 0.0008 |
| February | 2022 | 0.2175 | 0.2477 | 0.0044 | 0.0052 | 0.0322 | 0.028 | 0 | -- | 0.0004 |
| March | 2022 | 0.137 | 0.2333 | 0.0027 | 0.0069 | 0.0043 | 0.0105 | 0 | -- | 0.0007 |
| April | 2022 | 0.1592 | 0 | 0.0061 | 0 | 0.0064 | 0.009 | 0 | -- | 0.0001 |
| May | 2022 | 0.2301 | 0.0688 | 0.0054 | 0.0033 | 0.0033 | 0.001 | 0 | -- | 0.0001 |
| June | 2022 | 0.2636 | 0.2717 | 0.0038 | 0.0003 | 0.0007 | 0.0005 | 0 | -- | 0 |
| July | 2022 | 0.2618 | 0.1547 | 0.0053 | 0 | 0.0064 | 0.0087 | 0.0001 | -- | 0.0001 |
| August | 2022 | 0.2603 | 0.2756 | 0.0036 | 0.0004 | 0.0009 | 0.0009 | 0 | -- | 0.0001 |
| September | 2022 | 0.0886 | 0.0997 | 0.0014 | 0 | 0.0154 | 0.0119 | 0 | -- | 0.0001 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.0218 | 0.0426 | 0 | -- | 0.0007 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.029 | 0.0204 | 0 | -- | 0.0013 |
| December | 2022 | 0.0784 | 0.1939 | 0 | 0.0039 | 0.0254 | 0.0939 | 0 | -- | 0.001 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | VOC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0021 | 0 | 0 | 0.0086 | 0.0144 | 0 | -- | -- |
| February | 2020 | 0 | 0.0791 | 0 | 0.0817 | 0.0056 | 0.0003 | 0.0012 | -- | -- |
| March | 2020 | 0 | 0.0895 | 0 | 0.1248 | 0 | 0.0001 | 0 | -- | -- |
| April | 2020 | 0 | 0.0899 | 0 | 0.1117 | 0.0001 | 0.0002 | 0 | 0.0109 | -- |
| May | 2020 | 0 | 0.0806 | 0 | 0.0841 | 0.0006 | 0.0009 | 0 | 0.0057 | -- |
| June | 2020 | 0 | 0.0322 | 0 | 0.007 | 0.0027 | 0.0033 | 0.0168 | 0.0123 | -- |
| July | 2020 | 0 | 0.0142 | 0 | 0 | 0.0037 | 0.0061 | 0 | 0.0004 | -- |
| August | 2020 | 0 | 0.0568 | 0 | 0.0051 | 0.0105 | 0.0074 | 0 | 0.001 | -- |
| September | 2020 | 0 | 0.0815 | 0 | 0.0883 | 0.0027 | 0.0029 | 0 | 0.0004 | -- |
| October | 2020 | 0.0213 | 0.0931 | 0 | 0.0733 | 0.0048 | 0 | 0 | 0.0047 | -- |
| November | 2020 | 0.043 | 0.0899 | 0 | 0.075 | 0.0007 | 0.0003 | 0 | 0.0004 | -- |
| December | 2020 | 0.0383 | 0.0914 | 0.0188 | 0.0854 | 0.0074 | 0.0016 | 0 | 0.0023 | -- |
| January | 2021 | 0.0467 | 0.0875 | 0.034 | 0.0752 | 0.0052 | 0.0002 | 0.0002 | -- | 0.0006 |
| February | 2021 | 0.034 | 0.0791 | 0.0352 | 0.0747 | 0.0035 | 0.0012 | 0 | -- | 0.0002 |
| March | 2021 | 0.0454 | 0.0921 | 0.0219 | 0.0511 | 0.0011 | 0.0002 | 0 | -- | 0.0003 |
| April | 2021 | 0.0357 | 0.0364 | 0.0412 | 0.0084 | 0.0027 | 0.0014 | 0 | -- | 0.0024 |
| May | 2021 | 0.045 | 0.071 | 0.0408 | 0.0027 | 0 | 0.0004 | 0.0035 | -- | 0.004 |
| June | 2021 | 0.0446 | 0.0819 | 0.0272 | 0.0011 | 0.0001 | 0.003 | 0 | -- | 0.0004 |
| July | 2021 | 0.015 | 0.0902 | 0.0069 | 0.053 | 0.0025 | 0.0003 | 0 | -- | 0.0008 |
| August | 2021 | 0.0466 | 0.0108 | 0.055 | 0 | 0.0026 | 0 | 0.0002 | -- | 0.0003 |
| September | 2021 | 0.0451 | 0 | 0.0641 | 0 | 0.0027 | 0.0001 | 0 | -- | 0.0004 |
| October | 2021 | 0.0081 | 0 | 0.0043 | 0 | 0.0084 | 0.0057 | 0.0063 | -- | 0.0009 |
| November | 2021 | 0.0288 | 0.009 | 0.0194 | 0.0008 | 0.0076 | 0.0068 | 0 | -- | 0.0055 |
| December | 2021 | 0.0126 | 0.0882 | 0.0211 | 0.0514 | 0.0007 | 0.0043 | 0 | -- | 0.0022 |
| January | 2022 | 0.0456 | 0.0792 | 0.0522 | 0.0708 | 0.0021 | 0.0044 | 0 | -- | 0.005 |
| February | 2022 | 0.0363 | 0.0826 | 0.04 | 0.0479 | 0.0012 | 0.0062 | 0 | -- | 0.0028 |
| March | 2022 | 0.0228 | 0.0778 | 0.0245 | 0.0633 | 0.0017 | 0.0076 | 0 | -- | 0.0048 |
| April | 2022 | 0.0265 | 0 | 0.0558 | 0 | 0.0026 | 0.0065 | 0 | -- | 0.0009 |
| May | 2022 | 0.0383 | 0.0229 | 0.0498 | 0.0306 | 0.0013 | 0.0007 | 0 | -- | 0.0005 |
| June | 2022 | 0.0439 | 0.0906 | 0.0348 | 0.0027 | 0.0003 | 0.0004 | 0 | -- | 0.0003 |
| July | 2022 | 0.0436 | 0.0516 | 0.049 | 0 | 0.0025 | 0.0052 | 0.0074 | -- | 0.0006 |
| August | 2022 | 0.0434 | 0.0919 | 0.0334 | 0.0034 | 0.0004 | 0.0007 | 0 | -- | 0.0003 |
| September | 2022 | 0.0148 | 0.0332 | 0.0125 | 0 | 0.0062 | 0.0086 | 0 | -- | 0.0005 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.0088 | 0.0309 | 0 | -- | 0.0044 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.0097 | 0.0038 | 0.0003 | -- | 0.0077 |
| December | 2022 | 0.0131 | 0.0646 | 0 | 0.0358 | 0.0061 | 0.0623 | 0.0003 | -- | 0.0062 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | PM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0037 | 0 | 0 | 0.3264 | 0.2037 | 0 | -- | -- |
| February | 2020 | 0 | 0.1424 | 0 | 0.0297 | 0.2106 | 0.0037 | 0.0009 | -- | -- |
| March | 2020 | 0 | 0.161 | 0 | 0.0454 | 0.0006 | 0.0013 | 0 | -- | -- |
| April | 2020 | 0 | 0.1618 | 0 | 0.0407 | 0.0023 | 0.0023 | 0 | 0.0288 | -- |
| May | 2020 | 0 | 0.1451 | 0 | 0.0306 | 0.0211 | 0.0122 | 0 | 0.0152 | -- |
| June | 2020 | 0 | 0.0579 | 0 | 0.0026 | 0.1022 | 0.0462 | 0.013 | 0.0327 | -- |
| July | 2020 | 0 | 0.0256 | 0 | 0 | 0.1398 | 0.0859 | 0 | 0.0011 | -- |
| August | 2020 | 0 | 0.1023 | 0 | 0.0019 | 0.398 | 0.1046 | 0 | 0.0025 | -- |
| September | 2020 | 0 | 0.1467 | 0 | 0.0321 | 0.1086 | 0.1438 | 0 | 0.001 | -- |
| October | 2020 | 0.1044 | 0.1676 | 0 | 0.0267 | 0.2327 | 0 | 0 | 0.0834 | -- |
| November | 2020 | 0.2109 | 0.1618 | 0 | 0.0273 | 0.0284 | 0.0095 | 0 | 0.0011 | -- |
| December | 2020 | 0.1876 | 0.1644 | 0.0068 | 0.0311 | 0.3091 | 0.0722 | 0 | 0.0347 | -- |
| January | 2021 | 0.2287 | 0.1575 | 0.0124 | 0.0274 | 0.1981 | 0.0045 | 0.0001 | -- | 0.0016 |
| February | 2021 | 0.1664 | 0.1424 | 0.0128 | 0.0272 | 0.1329 | 0.0167 | 0 | -- | 0.0007 |
| March | 2021 | 0.2227 | 0.1658 | 0.008 | 0.0186 | 0.0426 | 0.0026 | 0 | -- | 0.0009 |
| April | 2021 | 0.1747 | 0.0655 | 0.015 | 0.0031 | 0.1021 | 0.0192 | 0 | -- | 0.0065 |
| May | 2021 | 0.2203 | 0.1278 | 0.0149 | 0.001 | 0.0016 | 0.005 | 0.0027 | -- | 0.0106 |
| June | 2021 | 0.2187 | 0.1474 | 0.0099 | 0.0004 | 0.0054 | 0.042 | 0 | -- | 0.0011 |
| July | 2021 | 0.0737 | 0.1623 | 0.0025 | 0.0193 | 0.0947 | 0.0044 | 0 | -- | 0.0021 |
| August | 2021 | 0.2284 | 0.0195 | 0.02 | 0 | 0.0966 | 0.0007 | 0.0002 | -- | 0.0007 |
| September | 2021 | 0.2209 | 0 | 0.0233 | 0 | 0.1018 | 0.0012 | 0 | -- | 0.0011 |
| October | 2021 | 0.0395 | 0 | 0.0016 | 0 | 0.319 | 0.0811 | 0.0049 | -- | 0.0131 |
| November | 2021 | 0.141 | 0.0163 | 0.0071 | 0.0003 | 0.2947 | 0.1085 | 0 | -- | 0.0369 |
| December | 2021 | 0.0617 | 0.1588 | 0.0077 | 0.0187 | 0.0262 | 0.0602 | 0 | -- | 0.0057 |
| January | 2022 | 0.2234 | 0.1426 | 0.019 | 0.0258 | 0.0838 | 0.0649 | 0 | -- | 0.0133 |
| February | 2022 | 0.1777 | 0.1486 | 0.0146 | 0.0174 | 0.0598 | 0.1113 | 0 | -- | 0.0075 |
| March | 2022 | 0.1119 | 0.14 | 0.0089 | 0.0231 | 0.066 | 0.1072 | 0 | -- | 0.0126 |
| April | 2022 | 0.13 | 0 | 0.0203 | 0 | 0.0973 | 0.0923 | 0 | -- | 0.0024 |
| May | 2022 | 0.1879 | 0.0413 | 0.0181 | 0.0111 | 0.0505 | 0.0098 | 0 | -- | 0.0013 |
| June | 2022 | 0.2153 | 0.163 | 0.0127 | 0.001 | 0.0114 | 0.0052 | 0 | -- | 0.0007 |
| July | 2022 | 0.2138 | 0.0928 | 0.0178 | 0 | 0.0966 | 0.0753 | 0.0057 | -- | 0.0016 |
| August | 2022 | 0.2126 | 0.1654 | 0.0122 | 0.0012 | 0.0141 | 0.0092 | 0 | -- | 0.002 |
| September | 2022 | 0.0723 | 0.0598 | 0.0046 | 0 | 0.2355 | 0.1217 | 0 | -- | 0.0012 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.3325 | 0.4359 | 0 | -- | 0.0115 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.3711 | 0.0716 | 0.0002 | -- | 0.037 |
| December | 2022 | 0.064 | 0.1163 | 0 | 0.013 | 0.236 | 0.8886 | 0.0002 | -- | 0.0211 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | PM10 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0037 | 0 | 0 | 0.3264 | 0.2037 | 0 | -- | -- |
| February | 2020 | 0 | 0.1424 | 0 | 0.0297 | 0.2106 | 0.0037 | 0.0008 | -- | -- |
| March | 2020 | 0 | 0.161 | 0 | 0.0454 | 0.0006 | 0.0013 | 0 | -- | -- |
| April | 2020 | 0 | 0.1618 | 0 | 0.0407 | 0.0023 | 0.0023 | 0 | 0.0288 | -- |
| May | 2020 | 0 | 0.1451 | 0 | 0.0306 | 0.0211 | 0.0122 | 0 | 0.0152 | -- |
| June | 2020 | 0 | 0.0579 | 0 | 0.0026 | 0.1022 | 0.0462 | 0.0107 | 0.0327 | -- |
| July | 2020 | 0 | 0.0256 | 0 | 0 | 0.1398 | 0.0859 | 0 | 0.0011 | -- |
| August | 2020 | 0 | 0.1023 | 0 | 0.0019 | 0.398 | 0.1046 | 0 | 0.0025 | -- |
| September | 2020 | 0 | 0.1467 | 0 | 0.0321 | 0.1086 | 0.1438 | 0 | 0.001 | -- |
| October | 2020 | 0.1044 | 0.1676 | 0 | 0.0267 | 0.2327 | 0 | 0 | 0.0834 | -- |
| November | 2020 | 0.2109 | 0.1618 | 0 | 0.0273 | 0.0284 | 0.0095 | 0 | 0.0011 | -- |
| December | 2020 | 0.1876 | 0.1644 | 0.0068 | 0.0311 | 0.3091 | 0.0722 | 0 | 0.0347 | -- |
| January | 2021 | 0.2287 | 0.1575 | 0.0124 | 0.0274 | 0.1981 | 0.0045 | 0.0001 | -- | 0.0016 |
| February | 2021 | 0.1664 | 0.1424 | 0.0128 | 0.0272 | 0.1329 | 0.0167 | 0 | -- | 0.0007 |
| March | 2021 | 0.2227 | 0.1658 | 0.008 | 0.0186 | 0.0426 | 0.0026 | 0 | -- | 0.0009 |
| April | 2021 | 0.1747 | 0.0655 | 0.015 | 0.0031 | 0.1021 | 0.0192 | 0 | -- | 0.0065 |
| May | 2021 | 0.2203 | 0.1278 | 0.0149 | 0.001 | 0.0016 | 0.005 | 0.0022 | -- | 0.0106 |
| June | 2021 | 0.2187 | 0.1474 | 0.0099 | 0.0004 | 0.0054 | 0.042 | 0 | -- | 0.0011 |
| July | 2021 | 0.0737 | 0.1623 | 0.0025 | 0.0193 | 0.0947 | 0.0044 | 0 | -- | 0.0021 |
| August | 2021 | 0.2284 | 0.0195 | 0.02 | 0 | 0.0966 | 0.0007 | 0.0002 | -- | 0.0007 |
| September | 2021 | 0.2209 | 0 | 0.0233 | 0 | 0.1018 | 0.0012 | 0 | -- | 0.0011 |
| October | 2021 | 0.0395 | 0 | 0.0016 | 0 | 0.319 | 0.0811 | 0.004 | -- | 0.0131 |
| November | 2021 | 0.141 | 0.0163 | 0.0071 | 0.0003 | 0.2947 | 0.1085 | 0 | -- | 0.0369 |
| December | 2021 | 0.0617 | 0.1588 | 0.0077 | 0.0187 | 0.0262 | 0.0602 | 0 | -- | 0.0057 |
| January | 2022 | 0.2234 | 0.1426 | 0.019 | 0.0258 | 0.0838 | 0.0649 | 0 | -- | 0.0133 |
| February | 2022 | 0.1777 | 0.1486 | 0.0146 | 0.0174 | 0.0598 | 0.1113 | 0 | -- | 0.0075 |
| March | 2022 | 0.1119 | 0.14 | 0.0089 | 0.0231 | 0.066 | 0.1072 | 0 | -- | 0.0126 |
| April | 2022 | 0.13 | 0 | 0.0203 | 0 | 0.0973 | 0.0923 | 0 | -- | 0.0024 |
| May | 2022 | 0.1879 | 0.0413 | 0.0181 | 0.0111 | 0.0505 | 0.0098 | 0 | -- | 0.0013 |
| June | 2022 | 0.2153 | 0.163 | 0.0127 | 0.001 | 0.0114 | 0.0052 | 0 | -- | 0.0007 |
| July | 2022 | 0.2138 | 0.0928 | 0.0178 | 0 | 0.0966 | 0.0753 | 0.0047 | -- | 0.0016 |
| August | 2022 | 0.2126 | 0.1654 | 0.0122 | 0.0012 | 0.0141 | 0.0092 | 0 | -- | 0.002 |
| September | 2022 | 0.0723 | 0.0598 | 0.0046 | 0 | 0.2355 | 0.1217 | 0 | -- | 0.0012 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.3325 | 0.4359 | 0 | -- | 0.0115 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.3711 | 0.0716 | 0.0002 | -- | 0.037 |
| December | 2022 | 0.064 | 0.1163 | 0 | 0.013 | 0.236 | 0.8886 | 0.0002 | -- | 0.0211 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**

| Month | Year | PM2.5 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Turbine 1 | Turbine 2 | Duct Burner 1 | Duct Burner 2 | Boiler 2 | Boiler 4 | Emerg. Gen. | Temporary Boiler | Mobile Boiler |
| January | 2020 | 0 | 0.0037 | 0 | 0 | 0.3264 | 0.2037 | 0 | -- | -- |
| February | 2020 | 0 | 0.1424 | 0 | 0.0297 | 0.2106 | 0.0037 | 0.0008 | -- | -- |
| March | 2020 | 0 | 0.161 | 0 | 0.0454 | 0.0006 | 0.0013 | 0 | -- | -- |
| April | 2020 | 0 | 0.1618 | 0 | 0.0407 | 0.0023 | 0.0023 | 0 | 0.0288 | -- |
| May | 2020 | 0 | 0.1451 | 0 | 0.0306 | 0.0211 | 0.0122 | 0 | 0.0152 | -- |
| June | 2020 | 0 | 0.0579 | 0 | 0.0026 | 0.1022 | 0.0462 | 0.0107 | 0.0327 | -- |
| July | 2020 | 0 | 0.0256 | 0 | 0 | 0.1398 | 0.0859 | 0 | 0.0011 | -- |
| August | 2020 | 0 | 0.1023 | 0 | 0.0019 | 0.398 | 0.1046 | 0 | 0.0025 | -- |
| September | 2020 | 0 | 0.1467 | 0 | 0.0321 | 0.1086 | 0.1438 | 0 | 0.001 | -- |
| October | 2020 | 0.1044 | 0.1676 | 0 | 0.0267 | 0.2327 | 0 | 0 | 0.0834 | -- |
| November | 2020 | 0.2109 | 0.1618 | 0 | 0.0273 | 0.0284 | 0.0095 | 0 | 0.0011 | -- |
| December | 2020 | 0.1876 | 0.1644 | 0.0068 | 0.0311 | 0.3091 | 0.0722 | 0 | 0.0347 | -- |
| January | 2021 | 0.2287 | 0.1575 | 0.0124 | 0.0274 | 0.1981 | 0.0045 | 0.0001 | -- | 0.0016 |
| February | 2021 | 0.1664 | 0.1424 | 0.0128 | 0.0272 | 0.1329 | 0.0167 | 0 | -- | 0.0007 |
| March | 2021 | 0.2227 | 0.1658 | 0.008 | 0.0186 | 0.0426 | 0.0026 | 0 | -- | 0.0009 |
| April | 2021 | 0.1747 | 0.0655 | 0.015 | 0.0031 | 0.1021 | 0.0192 | 0 | -- | 0.0065 |
| May | 2021 | 0.2203 | 0.1278 | 0.0149 | 0.001 | 0.0016 | 0.005 | 0.0022 | -- | 0.0106 |
| June | 2021 | 0.2187 | 0.1474 | 0.0099 | 0.0004 | 0.0054 | 0.042 | 0 | -- | 0.0011 |
| July | 2021 | 0.0737 | 0.1623 | 0.0025 | 0.0193 | 0.0947 | 0.0044 | 0 | -- | 0.0021 |
| August | 2021 | 0.2284 | 0.0195 | 0.02 | 0 | 0.0966 | 0.0007 | 0.0002 | -- | 0.0007 |
| September | 2021 | 0.2209 | 0 | 0.0233 | 0 | 0.1018 | 0.0012 | 0 | -- | 0.0011 |
| October | 2021 | 0.0395 | 0 | 0.0016 | 0 | 0.319 | 0.0811 | 0.004 | -- | 0.0131 |
| November | 2021 | 0.141 | 0.0163 | 0.0071 | 0.0003 | 0.2947 | 0.1085 | 0 | -- | 0.0369 |
| December | 2021 | 0.0617 | 0.1588 | 0.0077 | 0.0187 | 0.0262 | 0.0602 | 0 | -- | 0.0057 |
| January | 2022 | 0.2234 | 0.1426 | 0.019 | 0.0258 | 0.0838 | 0.0649 | 0 | -- | 0.0133 |
| February | 2022 | 0.1777 | 0.1486 | 0.0146 | 0.0174 | 0.0598 | 0.1113 | 0 | -- | 0.0075 |
| March | 2022 | 0.1119 | 0.14 | 0.0089 | 0.0231 | 0.066 | 0.1072 | 0 | -- | 0.0126 |
| April | 2022 | 0.13 | 0 | 0.0203 | 0 | 0.0973 | 0.0923 | 0 | -- | 0.0024 |
| May | 2022 | 0.1879 | 0.0413 | 0.0181 | 0.0111 | 0.0505 | 0.0098 | 0 | -- | 0.0013 |
| June | 2022 | 0.2153 | 0.163 | 0.0127 | 0.001 | 0.0114 | 0.0052 | 0 | -- | 0.0007 |
| July | 2022 | 0.2138 | 0.0928 | 0.0178 | 0 | 0.0966 | 0.0753 | 0.0047 | -- | 0.0016 |
| August | 2022 | 0.2126 | 0.1654 | 0.0122 | 0.0012 | 0.0141 | 0.0092 | 0 | -- | 0.002 |
| September | 2022 | 0.0723 | 0.0598 | 0.0046 | 0 | 0.2355 | 0.1217 | 0 | -- | 0.0012 |
| October | 2022 | 0 | 0 | 0 | 0 | 0.3325 | 0.4359 | 0 | -- | 0.0115 |
| November | 2022 | 0 | 0 | 0 | 0 | 0.3711 | 0.0716 | 0.0002 | -- | 0.037 |
| December | 2022 | 0.064 | 0.1163 | 0 | 0.013 | 0.236 | 0.8886 | 0.0002 | -- | 0.0211 |

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**Two (2) Rentech Boilers, 182.09 MMBtu/hr each - Natural Gas Firing**

| Scenario | Potential Operation | Projected Operation | |
|---|---|---|---|
| **Fuel:** | Natural Gas | Natural Gas | |
| **Number of Boilers:** | 2 | 2 | |
| **Hours of Operation per Unit (hr/yr/unit):** | 8,760 | 4,584 | |
| **Boiler Rating per Unit (MMBtu/hr/unit):** | 182.09 | 180.6 | At 99.2 % Load |
| **Fuel Use per Unit (scf/hr/unit) [1]:** | 175,966 | 174,559 | |
| **Fuel Use per Unit(MMscf/yr/unit):** | 1,541 | 800.18 | |
| **Fuel Use per Unit (MMBtu/yr/unit):** | 1,595,108 | **828,023** | |

**Emissions presented in the tables below are on a "per boiler" basis.**

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | PTE (tpy) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | | |
| Particulate Matter - Filt only | 1.9 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 3.34E-01 | 8.02 | 1.46 | 0.76 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 7.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 1.34E+00 | 32.10 | 5.86 | 3.04 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Con | 7.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 1.34E+00 | 32.10 | 5.86 | 3.04 |
| Sulfur Dioxide ($SO_2$) | 0.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 1.06E-01 | 2.53 | 0.46 | 0.24 |
| Nitrogen Oxides ($NO_X$) [2] | [redacted] | lb/MMBTU | Vendor Data | 6.73E+00 | 161.55 | 29.48 | 15.30 |
| Volatile Organic Compounds (VOC) | 5.5 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 9.68E-01 | 23.23 | 4.24 | 2.20 |
| Carbon Monoxide (CO) [2] | [redacted] | lb/MMBTU | Vendor Data | 6.83E+00 | 163.91 | 29.91 | 15.53 |
| ***HAP:*** | | | See table below | 3.32E-01 | 7.98 | 1.46E+00 | 7.56E-01 |
| ***GHG [3]:*** | | | | | | Metric Tonne/year | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 53.06 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 84,636.45 | 43,934.90 |
| Methane ($CH_4$) | 1.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 1.60E+00 | 0.83 |
| Nitrous Oxide ($N_2O$) | 1.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 1.60E-01 | 0.08 |

1. UMD higher heating value used in emission factor conversion (based on fuel analysis in Feb 2024); Btu/scf 1034.80
2. NOx = 30 ppmvd@3% O2; CO = 50 ppmvd@3% O2. (Vendor Data - See Appendix F)

$$\frac{lb}{MMBtu} = ppm * 10^{-6} * \frac{1}{molar\ volume} * Molar\ Weight * F_d * \frac{20.9}{(20.9 - \%O_2)}$$

| Input | Value |
|---|---|
| Molar Volume (dscf/lb-mol at 1 atm and 60 °F) | 379.73 |
| Fd Factor dscf/MMBtu (EPA Method 19, Table 19-2) | 8710 |
| Corrected Oxygen (%) | 3 |
| **Pollutant** | **Molar Weight** |
| NOx (as NO2; lb/lb-mol) | 46.01 |
| CO (lb/lb-mol) | 28.01 |

| Pollutant | ppmvd@3%O2 | lb/MMBtu |
|---|---|---|
| NOx | 30 | 0.0370 |
| CO | 50 | 0.0375 |

3. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv

Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne
1 metric tonne = 1.1023 short tons

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**Two (2) Rentech Boilers, 182.09 MMBtu/hr each - Natural Gas Firing**

**Natural Gas Boiler HAP Emissions**

| Pollutant | Emission Factor[1] | Emission Factor Units | Emissions (lb/hr) | PTE (tpy) | Projected Future Actual (tpy) |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | 2.40E-05 | lb/$10^6$ scf | 4.22E-06 | 1.85E-05 | 9.60E-06 |
| 3-Methylcholanthrene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| 7,12- Dimethylbenz(a)anthracene | 1.60E-05 | lb/$10^6$ scf | 2.82E-06 | 1.23E-05 | 6.40E-06 |
| Acenaphthene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Acenaphthylene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Anthracene | 2.40E-06 | lb/$10^6$ scf | 4.22E-07 | 1.85E-06 | 9.60E-07 |
| Benz(a)anthracene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Benzene | 2.10E-03 | lb/$10^6$ scf | 3.70E-04 | 1.62E-03 | 8.40E-04 |
| Benzo(a)pyrene | 1.20E-06 | lb/$10^6$ scf | 2.11E-07 | 9.25E-07 | 4.80E-07 |
| Benzo(b)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Benzo(g,h,i)perylene | 1.20E-06 | lb/$10^6$ scf | 2.11E-07 | 9.25E-07 | 4.80E-07 |
| Benzo(k)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Chrysene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Dibenzo(a,h)anthracene | 1.20E-06 | lb/$10^6$ scf | 2.11E-07 | 9.25E-07 | 4.80E-07 |
| Dichlorobenzene | 1.20E-03 | lb/$10^6$ scf | 2.11E-04 | 9.25E-04 | 4.80E-04 |
| Fluoranthene | 3.00E-06 | lb/$10^6$ scf | 5.28E-07 | 2.31E-06 | 1.20E-06 |
| Fluorene | 2.80E-06 | lb/$10^6$ scf | 4.93E-07 | 2.16E-06 | 1.12E-06 |
| Formaldehyde | 7.50E-02 | lb/$10^6$ scf | 1.32E-02 | 5.78E-02 | 3.00E-02 |
| Hexane | 1.80E+00 | lb/$10^6$ scf | 3.17E-01 | 1.39E+00 | 7.20E-01 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | lb/$10^6$ scf | 3.17E-07 | 1.39E-06 | 7.20E-07 |
| Naphthalene | 6.10E-04 | lb/$10^6$ scf | 1.07E-04 | 4.70E-04 | 2.44E-04 |
| Phenanathrene | 1.70E-05 | lb/$10^6$ scf | 2.99E-06 | 1.31E-05 | 6.80E-06 |
| Pyrene | 5.00E-06 | lb/$10^6$ scf | 8.80E-07 | 3.85E-06 | 2.00E-06 |
| Toluene | 3.40E-03 | lb/$10^6$ scf | 5.98E-04 | 2.62E-03 | 1.36E-03 |
| Arsenic | 2.00E-04 | lb/$10^6$ scf | 3.52E-05 | 1.54E-04 | 8.00E-05 |
| Beryllium | 1.20E-05 | lb/$10^6$ scf | 2.11E-06 | 9.25E-06 | 4.80E-06 |
| Cadmium | 1.10E-03 | lb/$10^6$ scf | 1.94E-04 | 8.48E-04 | 4.40E-04 |
| Chromium | 1.40E-03 | lb/$10^6$ scf | 2.46E-04 | 1.08E-03 | 5.60E-04 |
| Cobalt | 8.40E-05 | lb/$10^6$ scf | 1.48E-05 | 6.47E-05 | 3.36E-05 |
| Lead | 5.00E-04 | lb/$10^6$ scf | 8.80E-05 | 3.85E-04 | 2.00E-04 |
| Manganese | 3.80E-04 | lb/$10^6$ scf | 6.69E-05 | 2.93E-04 | 1.52E-04 |
| Mercury | 2.60E-04 | lb/$10^6$ scf | 4.58E-05 | 2.00E-04 | 1.04E-04 |
| Nickel | 2.10E-03 | lb/$10^6$ scf | 3.70E-04 | 1.62E-03 | 8.40E-04 |
| Selenium | 2.40E-05 | lb/$10^6$ scf | 4.22E-06 | 1.85E-05 | 9.60E-06 |
| **Total HAP** | | | **3.32E-01** | **1.46E+00** | **7.56E-01** |

1. Emissions factors for Natural Gas fired boilers from AP-42 Tables 1.4-3 and 1.4-4.

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**Two (2) Rentech Boilers, 182.09 MMBtu/hr each - ULSD**

| | |
|---|---|
| **Fuel:** | Ultra low sulfur diesel |
| **Number of Boilers:** | 2 |
| **Hours of Operation per unit (hr/yr/unit):** | 48 |
| **Boiler Rating per unit (MMBtu/hr/unit):** | 175.08 |
| **Fuel Use per unit (gal/hr/unit) [1]:** | 1,268.7 |
| **Fuel Use per unit (Mgal/yr/unit):** | 60.9 |

**Emissions presented in the tables below are on a "per boiler" basis.**

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | |
| Particulate Matter - Filt only | 2.00E+00 | lb/$10^3$ gal | AP-42 Tables 1.3-1 and 1.3-2 | 2.54 | 60.90 | 0.06 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 2.30E+00 | lb/$10^3$ gal | AP-42 Tables 1.3-2 and 1.3-6 | 2.92 | 70.03 | 0.07 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | 1.55E+00 | lb/$10^3$ gal | AP-42 Tables 1.3-2 and 1.3-6 | 1.97 | 47.20 | 0.05 |
| Sulfur Dioxide ($SO_2$) [2] | 2.13E-01 | lb/$10^3$ gal | AP-42 Table 1.3-1 | 0.27 | 6.49 | 0.01 |
| Nitrogen Oxides ($NO_X$) [3] | [redacted] | lb/MMBtu | Vendor Data | 15.93 | 382.41 | 0.38 |
| Volatile Organic Compounds (VOC) | 2.00E-01 | lb/$10^3$ gal | AP-42 Table 1.3-3 | 0.25 | 6.09 | 0.01 |
| Carbon Monoxide (CO) [3] | [redacted] | lb/MMBtu | Vendor Data | 6.93 | 166.29 | 0.17 |
| ***HAP:*** | | | See table below | 0.092 | 2.21 | 0.002 |
| ***GHG [4]:*** | | | | | | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 73.96 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 621.55 |
| Methane ($CH_4$) | 3.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 0.03 |
| Nitrous Oxide ($N_2O$) | 6.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 0.01 |

1. Heat input per 40 CFR 98 Subpart C Table C-1 (MMBtu/gal): 0.138
2. ULSD sulfur content (15 ppm) 0.0015
3. NOx = 70 ppmvd@3% O2; CO = 50 ppmvd@3% O2. (Vendor Data - See Appendix F)

$$\frac{lb}{MMBtu} = ppm * 10^{-6} * \frac{1}{molar\ volume} * Molar\ Weight * F_d * \frac{20.9}{(20.9 - \%O_2)}$$

| Input | Value |
|---|---|
| Molar Volume (dscf/lb-mol at 1 atm and 60 °F) | 379.73 |
| Fd Factor dscf/MMBtu (EPA Method 19, Table 19-2) | 9190 |
| Corrected Oxygen (%) | 3 |

| Pollutant | Molar Weight |
|---|---|
| NOx (as NO2; lb/lb-mol) | 46.01 |
| CO (lb/lb-mol) | 28.01 |

| Pollutant | ppmvd@3%O2 | lb/MMBtu |
|---|---|---|
| NOx | 70 | 0.0910 |
| CO | 50 | 0.0396 |

4. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv
Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

**ULSD Boiler HAP Emissions**

| Pollutant | Emission Factor[1,2] | Emission Factor Units | Emissions (lb/hr) | Emissions (tpy) |
|---|---|---|---|---|
| Arsenic | 4.0 | lb/$10^{12}$ Btu | 7.00E-04 | 1.68E-05 |
| Beryllium | 3.0 | lb/$10^{12}$ Btu | 5.25E-04 | 1.26E-05 |
| Cadmium | 3.0 | lb/$10^{12}$ Btu | 5.25E-04 | 1.26E-05 |
| Chromium | 3.0 | lb/$10^{12}$ Btu | 5.25E-04 | 1.26E-05 |
| Copper | 6.0 | lb/$10^{12}$ Btu | 1.05E-03 | 2.52E-05 |
| Lead | 9.0 | lb/$10^{12}$ Btu | 1.58E-03 | 3.78E-05 |
| Mercury | 3.0 | lb/$10^{12}$ Btu | 5.25E-04 | 1.26E-05 |
| Manganese | 6.0 | lb/$10^{12}$ Btu | 1.05E-03 | 2.52E-05 |
| Nickel | 3.0 | lb/$10^{12}$ Btu | 5.25E-04 | 1.26E-05 |
| Selenium | 15.0 | lb/$10^{12}$ Btu | 2.63E-03 | 6.30E-05 |
| Zinc | 4.0 | lb/$10^{12}$ Btu | 7.00E-04 | 1.68E-05 |
| Polycyclic Organic Matter | 3.30E-03 | lb/$10^3$ gal | 4.19E-03 | 1.00E-04 |
| Formaldehyde[2] | 6.10E-02 | lb/$10^3$ gal | 7.74E-02 | 1.86E-03 |
| **Total HAP** | | | **9.19E-02** | **2.21E-03** |

1. Emissions factors for No. 2 fuel oil fired boilers from AP-42 Table 1.3-8 and 1.3-10
2. The maximum of the emission factor range from Table 1.3-8 was used in this calculation

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**Rentech Boilers - Pilot Mode, 9.25 MMBtu/hr each - Natural Gas Firing**

| Scenario | Potential Operation | Projected Operation |
|---|---|---|
| **Fuel:** | Natural Gas | Natural Gas |
| **Number of units:** | 2 | 2 |
| **Hours of Operation per unit (hr/yr/unit):** | 8,760 | 1,812 |
| **Pilot Burner Rating per unit (MMBtu/hr/unit):** | 9.25 | 9.25 |
| **Fuel Use per unit (scf/hr/unit) [1]:** | 8,939 | 8,939 |
| **Fuel Use per unit (MMscf/yr/unit):** | 78.30 | 16.20 |
| **Fuel Use per unit (MMBtu/yr/unit):** | 81,030 | **16,761** |

**Emissions presented in the tables below are on a "per unit" basis.**

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | PTE (tpy) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | | |
| Particulate Matter - Filt only | 1.9 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 1.70E-02 | 0.41 | 0.07 | 0.02 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 7.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 6.79E-02 | 1.63 | 0.30 | 0.06 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | 7.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 6.79E-02 | 1.63 | 0.30 | 0.06 |
| Sulfur Dioxide ($SO_2$) | 0.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 5.36E-03 | 0.13 | 0.02 | 0.00 |
| Nitrogen Oxides ($NO_x$)[2] | [redacted] | lb/MMBTU | Vendor Data | 2.28E+00 | 54.71 | 9.98 | 2.07 |
| Volatile Organic Compounds (VOC) | [redacted] | lb/MMBTU | Vendor Data | 2.78E-01 | 6.66 | 1.22 | 0.25 |
| Carbon Monoxide (CO)[2] | [redacted] | lb/MMBTU | Vendor Data | 6.94E+00 | 166.53 | 30.39 | 6.29 |
| ***HAP:*** | | | See table below | 1.69E-02 | 0.41 | 7.39E-02 | 1.53E-02 |
| ***GHG [3]:*** | | | | | | Metric Tonne/year | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 53.06 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 4,299.45 | 889.34 |
| Methane ($CH_4$) | 1.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 8.10E-02 | 0.02 |
| Nitrous Oxide ($N_2O$) | 1.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 8.10E-03 | 0.00 |

1. UMD higher heating value used in emission factor conversion (based on fuel analysis in Feb 2024); Btu/scf 1034.80
2. NOx = 200 ppmvd@3% O2; CO = 1,000 ppmvd@3% O2. (Vendor Data - See Appendix F)

$$\frac{lb}{MMBtu} = ppm * 10^{-6} * \frac{1}{molar\ volume} * Molar\ Weight * F_d * \frac{20.9}{(20.9 - \%O_2)}$$

| Input | Value |
|---|---|
| Molar Volume (dscf/lb-mol at 1 atm and 60 °F) | 379.73 |
| Fd Factor dscf/MMBtu (EPA Method 19, Table 19-2) | 8710 |
| Corrected Oxygen (%) | 3 |

| Pollutant | Molar Weight |
|---|---|
| NOx (as NO2; lb/lb-mol) | 46.01 |
| CO (lb/lb-mol) | 28.01 |

| Pollutant | ppmvd@3%O2 | lb/MMBtu |
|---|---|---|
| NOx | 200 | 0.2464 |
| CO | 1000 | 0.7502 |

3. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv

Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

**Natural Gas Pilot Burner HAP Emissions**

| Pollutant | Emission Factor[1] | Emission Factor Units | Emissions (lb/hr) | PTE (tpy) | Projected Future Actual (tpy) |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | 2.40E-05 | lb/$10^6$ scf | 2.15E-07 | 9.40E-07 | 1.94E-07 |
| 3-Methylcholanthrene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| 7,12- Dimethylbenz(a)anthracene | 1.60E-05 | lb/$10^6$ scf | 1.43E-07 | 6.26E-07 | 1.30E-07 |
| Acenaphthene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Acenaphthylene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Anthracene | 2.40E-06 | lb/$10^6$ scf | 2.15E-08 | 9.40E-08 | 1.94E-08 |
| Benz(a)anthracene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Benzene | 2.10E-03 | lb/$10^6$ scf | 1.88E-05 | 8.22E-05 | 1.70E-05 |
| Benzo(a)pyrene | 1.20E-06 | lb/$10^6$ scf | 1.07E-08 | 4.70E-08 | 9.72E-09 |
| Benzo(b)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | lb/$10^6$ scf | 1.07E-08 | 4.70E-08 | 9.72E-09 |
| Benzo(k)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Chrysene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Dibenzo(a,h)anthracene | 1.20E-06 | lb/$10^6$ scf | 1.07E-08 | 4.70E-08 | 9.72E-09 |
| Dichlorobenzene | 1.20E-03 | lb/$10^6$ scf | 1.07E-05 | 4.70E-05 | 9.72E-06 |
| Fluoranthene | 3.00E-06 | lb/$10^6$ scf | 2.68E-08 | 1.17E-07 | 2.43E-08 |
| Fluorene | 2.80E-06 | lb/$10^6$ scf | 2.50E-08 | 1.10E-07 | 2.27E-08 |
| Formaldehyde | 7.50E-02 | lb/$10^6$ scf | 6.70E-04 | 2.94E-03 | 6.07E-04 |
| Hexane | 1.80E+00 | lb/$10^6$ scf | 1.61E-02 | 7.05E-02 | 1.46E-02 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | lb/$10^6$ scf | 1.61E-08 | 7.05E-08 | 1.46E-08 |
| Naphthalene | 6.10E-04 | lb/$10^6$ scf | 5.45E-06 | 2.39E-05 | 4.94E-06 |
| Phenanathrene | 1.70E-05 | lb/$10^6$ scf | 1.52E-07 | 6.66E-07 | 1.38E-07 |
| Pyrene | 5.00E-06 | lb/$10^6$ scf | 4.47E-08 | 1.96E-07 | 4.05E-08 |
| Toluene | 3.40E-03 | lb/$10^6$ scf | 3.04E-05 | 1.33E-04 | 2.75E-05 |
| Arsenic | 2.00E-04 | lb/$10^6$ scf | 1.79E-06 | 7.83E-06 | 1.62E-06 |
| Beryllium | 1.20E-05 | lb/$10^6$ scf | 1.07E-07 | 4.70E-07 | 9.72E-08 |
| Cadmium | 1.10E-03 | lb/$10^6$ scf | 9.83E-06 | 4.31E-05 | 8.91E-06 |
| Chromium | 1.40E-03 | lb/$10^6$ scf | 1.25E-05 | 5.48E-05 | 1.13E-05 |
| Cobalt | 8.40E-05 | lb/$10^6$ scf | 7.51E-07 | 3.29E-06 | 6.80E-07 |
| Lead | 5.00E-04 | lb/$10^6$ scf | 4.47E-06 | 1.96E-05 | 4.05E-06 |
| Manganese | 3.80E-04 | lb/$10^6$ scf | 3.40E-06 | 1.49E-05 | 3.08E-06 |
| Mercury | 2.60E-04 | lb/$10^6$ scf | 2.32E-06 | 1.02E-05 | 2.11E-06 |
| Nickel | 2.10E-03 | lb/$10^6$ scf | 1.88E-05 | 8.22E-05 | 1.70E-05 |
| Selenium | 2.40E-05 | lb/$10^6$ scf | 2.15E-07 | 9.40E-07 | 1.94E-07 |
| **Total HAP** | | | **1.69E-02** | **7.39E-02** | **1.53E-02** |

1. Emissions factors for Natural Gas fired boilers from AP-42 Tables 1.4-3 and 1.4-4.

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**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**One (1) Solar Titan 130, Dual-Fuel 16.5 MW Combustion Turbine - Natural Gas Firing**

| Scenario | Potential Operation | Projected Operation | |
|---|---|---|---|
| **Fuel:** | Natural Gas | Natural Gas | |
| **Number of Combustion Turbines:** | 1 | 1 | |
| **Hours of Operation per Unit (hr/yr/unit):** | 8,760 | 8,352 | |
| **Boiler Rating per Unit (MMBtu/hr/unit):** | 171.9 | 138.7 | At 80.7 % Load |
| **Fuel Use per Unit (scf/hr/unit) [1]:** | 166,119 | 134,058 | |
| **Fuel Use per Unit(MMscf/yr/unit):** | 1,455 | 1119.65 | |
| **Fuel Use per Unit (MMBtu/yr/unit):** | 1,505,844 | **1,158,617** | |

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | PTE (tpy) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | | |
| Particulate Matter - Filt only | 1.90E-03 | lb/MMBTU | AP-42 Table 3.1-2a | 3.27E-01 | 7.84 | 1.43 | 1.10 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 6.60E-03 | lb/MMBTU | AP-42 Table 3.1-2a | 1.13E+00 | 27.23 | 4.97 | 3.82 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | 6.60E-03 | lb/MMBTU | AP-42 Table 3.1-2a | 1.13E+00 | 27.23 | 4.97 | 3.82 |
| Sulfur Dioxide [2] ($SO_2$) | 3.40E-03 | lb/MMBTU | AP-42 Table 3.1-2a | 5.84E-01 | 14.03 | 2.56 | 1.97 |
| Nitrogen Oxides ($NO_X$) [3] | [redacted] | lb/MMBTU | Vendor Data | 9.64E+00 | 231.35 | 42.22 | 32.49 |
| Volatile Organic Compounds (VOC) [3] | [redacted] | lb/MMBTU | Vendor Data | 1.12E+00 | 26.88 | 4.91 | 3.78 |
| Carbon Monoxide (CO) [3] | [redacted] | lb/MMBTU | Vendor Data | 9.78E+00 | 234.73 | 42.84 | 32.96 |
| ***HAP:*** | | | See table below | 1.77E-01 | 4.24E+00 | 7.73E-01 | 5.95E-01 |
| ***GHG [4]:*** | | | | | | Metric Tonne/year | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 53.06 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 79,900.08 | 61,476.22 |
| Methane ($CH_4$) | 1.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 1.51E+00 | 1.16 |
| Nitrous Oxide ($N_2O$) | 1.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 1.51E-01 | 0.12 |

1. UMD higher heating value used in emission factor conversion (based on fuel analysis in Feb 2024); Btu/scf 1034.80
2. AP-42 Table 3.1-2a states all sulfur in the fuel is assumed to be converted to $SO_2$. 0.94 is to be multiplied by the fuel's sulfur content
Natural Gas sulfur content (%) 0
3. Vendor estimates during Natural Gas firing: NOx = 15 ppmvd@15% O2; CO = 25 ppmvd@15% O2 and VOC = 5 ppmvd@15% O2.

$$\frac{lb}{MMBtu} = ppm \times 10^{-6} \times \frac{1}{molar\ volume} \times Molar\ Weight \times F_d \times \frac{20.9}{(20.9 - \%O_2)}$$

| Input | Value |
|---|---|
| Molar Volume (dscf/lb-mol at 1 atm and 60 °F) | 379.73 |
| Fd Factor dscf/MMBtu (EPA Method 19, Table 19-2) | 8710 |
| Corrected Oxygen (%) | 15 |

| Pollutant | Molar Weight |
|---|---|
| NOx (as NO2; lb/lb-mol) | 46.01 |
| CO (lb/lb-mol) | 28.01 |
| VOC (as methane; lb/lb-mol) | 16.04 |

| Pollutant | ppmvd@15%O2 | lb/MMBtu |
|---|---|---|
| NOx | 15 | 0.0561 |
| CO | 25 | 0.0569 |
| VOC | 5 | 0.0065 |

4. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv
Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

**Natural Gas Turbine HAP Emissions[1]**

| Pollutant | Emission Factor | Emission Factor Units | Emissions (lb/hr) | Emissions (tpy) | Projected Actual (tpy) |
|---|---|---|---|---|---|
| 1,3-Butadiene | 4.30E-07 | lb/MMBTU | 7.39E-05 | 3.24E-04 | 2.49E-04 |
| Acetaldehyde | 4.00E-05 | lb/MMBTU | 6.88E-03 | 3.01E-02 | 2.32E-02 |
| Acrolein | 6.40E-06 | lb/MMBTU | 1.10E-03 | 4.82E-03 | 3.71E-03 |
| Benzene | 1.20E-05 | lb/MMBTU | 2.06E-03 | 9.04E-03 | 6.95E-03 |
| Ethylbenzene | 3.20E-05 | lb/MMBTU | 5.50E-03 | 2.41E-02 | 1.85E-02 |
| Formaldehyde | 7.10E-04 | lb/MMBTU | 1.22E-01 | 5.35E-01 | 4.11E-01 |
| Naphthalene | 1.30E-06 | lb/MMBTU | 2.23E-04 | 9.79E-04 | 7.53E-04 |
| PAH | 2.20E-06 | lb/MMBTU | 3.78E-04 | 1.66E-03 | 1.27E-03 |
| Propylene Oxide | 2.90E-05 | lb/MMBTU | 4.99E-03 | 2.18E-02 | 1.68E-02 |
| Toluene | 1.30E-04 | lb/MMBTU | 2.23E-02 | 9.79E-02 | 7.53E-02 |
| Xylenes | 6.40E-05 | lb/MMBTU | 1.10E-02 | 4.82E-02 | 3.71E-02 |
| **Total HAP** | | | **1.77E-01** | **7.73E-01** | **5.95E-01** |

1. Emissions factors for Natural Gas fired stationary gas turbines from AP-42 Table 3.1-3

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**Emissions Calculations**
**Potential and Projected Actual Emissions**
**One (1) Solar Titan 130, dual-fuel 16.5 MW Combustion Turbine - ULSD**

| | |
|---|---|
| **Fuel:** | Ultra low sulfur diesel |
| **Number of Combustion Turbines:** | 1 |
| **Hours of Operation per unit (hr/yr/unit):** | 48 |
| **Rating per unit (MMBtu/hr/unit):** | 158.2 |
| **Fuel Use per unit (gal/hr/unit) [1]:** | 1,146 |
| **Fuel Use per unit (Mgal/yr/unit):** | 55 |

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | |
| Particulate Matter - Filt only | 4.30E-03 | lb/MMBtu | AP-42 Table 3.1-2a | 6.80E-01 | 16.33 | 0.02 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 1.20E-02 | lb/MMBtu | AP-42 Table 3.1-2a | 1.90E+00 | 45.56 | 0.05 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | 1.20E-02 | lb/MMBtu | AP-42 Table 3.1-2a | 1.90E+00 | 45.56 | 0.05 |
| Sulfur Dioxide [2] ($SO_2$) | 1.52E-03 | lb/MMBtu | AP-42 Table 3.1-2a | 2.40E-01 | 5.75 | 0.01 |
| Nitrogen Oxides ($NO_x$) [3] | [redacted] | lb/MMBtu | Vendor Data | 4.06E+01 | 973.46 | 0.97 |
| Volatile Organic Compounds (VOC) [3] | [redacted] | lb/MMBtu | Vendor Data | 5.44E+00 | 130.53 | 0.13 |
| Carbon Monoxide (CO) [3] | [redacted] | lb/MMBtu | Vendor Data | 9.50E+00 | 227.93 | 0.23 |
| ***HAP:*** | | | See table below | 2.04E-01 | 4.89E+00 | 4.89E-03 |
| ***GHG [4]:*** | | | | | | (metric tpy) |
| Carbon Dioxide ($CO_2$) | 73.96 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 561.62 |
| Methane ($CH_4$) | 3.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 2.28E-02 |
| Nitrous Oxide ($N_2O$) | 6.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 4.56E-03 |

1. Heat input per 40 CFR 98 Subpart C Table C-1 (MMBtu/gal): 0.138
2. ULSD sulfur content (15 ppm): 0.0015
3. Vendor estimates during ULSD firing: NOx = 65 ppmvd@15% O2; CO = 25 ppmvd@15% O2 and VOC = 25 ppmvd@15% O2.

$$\frac{lb}{MMBtu} = ppm * 10^{-6} * \frac{1}{molar\ volume} * Molar\ Weight * F_d * \frac{20.9}{(20.9 - \%O_2)}$$

| Input | Value |
|---|---|
| Molar Volume (dscf/lb-mol at 1 atm and 60 °F) | 379.73 |
| Fd Factor dscf/MMBtu (EPA Method 19, Table 19-2) | 9190 |
| Corrected Oxygen (%) | 15 |

| Pollutant | Molar Weight |
|---|---|
| NOx (as NO2; lb/lb-mol) | 46.01 |
| CO (lb/lb-mol) | 28.01 |
| VOC (as methane; lb/lb-mol) | 16.04 |

| Pollutant | ppmvd@15%O2 | lb/MMBtu |
|---|---|---|
| NOx | 65 | 0.2564 |
| CO | 25 | 0.0600 |
| VOC | 25 | 0.0344 |

4. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part
$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv
Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

**ULSD Turbine HAP Emissions**

| Pollutant | Emission Factor[1] | Emission Factor Units | Emissions (lb/hr) | Emissions (tpy) |
|---|---|---|---|---|
| 1-2-Butadiene | 1.60E-05 | lb/MMBtu | 2.53E-03 | 6.07E-05 |
| Benzene | 5.50E-05 | lb/MMBtu | 8.70E-03 | 2.09E-04 |
| Formaldehyde | 2.80E-04 | lb/MMBtu | 4.43E-02 | 1.06E-03 |
| Naphthalene | 3.50E-05 | lb/MMBtu | 5.54E-03 | 1.33E-04 |
| PAH | 4.00E-05 | lb/MMBtu | 6.33E-03 | 1.52E-04 |
| Arsenic | 1.10E-05 | lb/MMBtu | 1.74E-03 | 4.18E-05 |
| Beryllium | 3.10E-07 | lb/MMBtu | 4.90E-05 | 1.18E-06 |
| Cadmium | 4.80E-06 | lb/MMBtu | 7.59E-04 | 1.82E-05 |
| Chromium | 1.10E-05 | lb/MMBtu | 1.74E-03 | 4.18E-05 |
| Lead | 1.40E-05 | lb/MMBtu | 2.21E-03 | 5.32E-05 |
| Manganese | 7.90E-04 | lb/MMBtu | 1.25E-01 | 3.00E-03 |
| Mercury | 1.20E-06 | lb/MMBtu | 1.90E-04 | 4.56E-06 |
| Nickel | 4.60E-06 | lb/MMBtu | 7.28E-04 | 1.75E-05 |
| Selenium | 2.50E-05 | lb/MMBtu | 3.95E-03 | 9.49E-05 |
| **Total HAP** | | | **2.04E-01** | **4.89E-03** |

1. Emissions factors for No. 2 Fuel Oil fired stationary gas turbines from AP-42 Table 3.1-4 and Table 3.1-5.

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**One (1) Duct Burner - Natural Gas Firing**

| Scenario | Potential Operation | Projected Operation | |
|---|---|---|---|
| **Fuel:** | Natural Gas | Natural Gas | |
| **Number of HRSG Duct Burners:** | 1 | 1 | |
| **Hours of Operation (hr/yr):** | 8,760 | 8,400 | |
| **Rating (MMBtu/hr):** | 92.0 | 74.2 | At 80.7 % Load |
| **Fuel Use (scf/hr) [1]:** | 88,906 | 71,747 | |
| **Fuel Use (MMscf/yr):** | 779 | 603 | |
| **Fuel Use (MMBtu/yr):** | **805,920** | **623,650** | |

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (lb/day) | PTE (tpy) | Projected Actual (tpy) |
|---|---|---|---|---|---|---|---|
| ***Criteria:*** | | | | | | | |
| Particulate Matter - Filt only | 1.9 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 1.69E-01 | 4.05 | 0.74 | 0.57 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | [redacted] | lb/MMBTU | Vendor Data | 6.85E-04 | 0.02 | 3.10 | 2.40 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | [redacted] | lb/MMBTU | Vendor Data | 6.85E-04 | 0.02 | 3.10 | 2.40 |
| Sulfur Dioxide ($SO_2$) | 0.6 | lb/$10^6$ scf | AP-42 Table 1.4-2 | 5.33E-02 | 1.28 | 0.23 | 0.18 |
| Nitrogen Oxides ($NO_X$) | [redacted] | lb/MMBTU | Manufacturer's Data | 9.20E+00 | 220.80 | 40.30 | 31.18 |
| Volatile Organic Compounds (VOC) | [redacted] | lb/MMBTU | Vendor Data | 8.89E-04 | 0.02 | 4.03 | 3.12 |
| Carbon Monoxide (CO) | [redacted] | lb/MMBTU | Manufacturer's Data | 7.54E+00 | 181.06 | 33.04 | 25.57 |
| ***HAP:*** | | | See table below | 1.68E-01 | 4.03 | 7.35E-01 | 5.69E-01 |
| ***GHG [2]:*** | | | | | | Metric Tonne/year | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 53.06 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | | 42,762.12 | 33,090.85 |
| Methane ($CH_4$) | 1.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 8.06E-01 | 0.62 |
| Nitrous Oxide ($N_2O$) | 1.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | | 8.06E-02 | 0.06 |

1. UMD higher heating value used in emission factor conversion (based on fuel analysis in Feb 2024); Btu/scf 1034.80

2. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv

Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential and Projected Actual Emissions**
**One (1) Duct Burner - Natural Gas Firing**

**Natural Gas Boiler HAP Emissions**

| Pollutant | Emission Factor [1] | Emission Factor Units | Emissions (lb/hr) | PTE (tpy) | Projected Future Actual (tpy) |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | 2.40E-05 | lb/$10^6$ scf | 2.13E-06 | 9.35E-06 | 7.23E-06 |
| 3-Methylcholanthrene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| 7,12- Dimethylbenz(a)anthracene | 1.60E-05 | lb/$10^6$ scf | 1.42E-06 | 6.23E-06 | 4.82E-06 |
| Acenaphthene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Acenaphthylene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Anthracene | 2.40E-06 | lb/$10^6$ scf | 2.13E-07 | 9.35E-07 | 7.23E-07 |
| Benz(a)anthracene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Benzene | 2.10E-03 | lb/$10^6$ scf | 1.87E-04 | 8.18E-04 | 6.33E-04 |
| Benzo(a)pyrene | 1.20E-06 | lb/$10^6$ scf | 1.07E-07 | 4.67E-07 | 3.62E-07 |
| Benzo(b)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Benzo(g,h,i)perylene | 1.20E-06 | lb/$10^6$ scf | 1.07E-07 | 4.67E-07 | 3.62E-07 |
| Benzo(k)fluoranthene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Chrysene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Dibenzo(a,h)anthracene | 1.20E-06 | lb/$10^6$ scf | 1.07E-07 | 4.67E-07 | 3.62E-07 |
| Dichlorobenzene | 1.20E-03 | lb/$10^6$ scf | 1.07E-04 | 4.67E-04 | 3.62E-04 |
| Fluoranthene | 3.00E-06 | lb/$10^6$ scf | 2.67E-07 | 1.17E-06 | 9.04E-07 |
| Fluorene | 2.80E-06 | lb/$10^6$ scf | 2.49E-07 | 1.09E-06 | 8.44E-07 |
| Formaldehyde | 7.50E-02 | lb/$10^6$ scf | 6.67E-03 | 2.92E-02 | 2.26E-02 |
| Hexane | 1.80E+00 | lb/$10^6$ scf | 1.60E-01 | 7.01E-01 | 5.42E-01 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | lb/$10^6$ scf | 1.60E-07 | 7.01E-07 | 5.42E-07 |
| Naphthalene | 6.10E-04 | lb/$10^6$ scf | 5.42E-05 | 2.38E-04 | 1.84E-04 |
| Phenanathrene | 1.70E-05 | lb/$10^6$ scf | 1.51E-06 | 6.62E-06 | 5.12E-06 |
| Pyrene | 5.00E-06 | lb/$10^6$ scf | 4.45E-07 | 1.95E-06 | 1.51E-06 |
| Toluene | 3.40E-03 | lb/$10^6$ scf | 3.02E-04 | 1.32E-03 | 1.02E-03 |
| Arsenic | 2.00E-04 | lb/$10^6$ scf | 1.78E-05 | 7.79E-05 | 6.03E-05 |
| Beryllium | 1.20E-05 | lb/$10^6$ scf | 1.07E-06 | 4.67E-06 | 3.62E-06 |
| Cadmium | 1.10E-03 | lb/$10^6$ scf | 9.78E-05 | 4.28E-04 | 3.31E-04 |
| Chromium | 1.40E-03 | lb/$10^6$ scf | 1.24E-04 | 5.45E-04 | 4.22E-04 |
| Cobalt | 8.40E-05 | lb/$10^6$ scf | 7.47E-06 | 3.27E-05 | 2.53E-05 |
| Lead | 5.00E-04 | lb/$10^6$ scf | 4.45E-05 | 1.95E-04 | 1.51E-04 |
| Manganese | 3.80E-04 | lb/$10^6$ scf | 3.38E-05 | 1.48E-04 | 1.15E-04 |
| Mercury | 2.60E-04 | lb/$10^6$ scf | 2.31E-05 | 1.01E-04 | 7.83E-05 |
| Nickel | 2.10E-03 | lb/$10^6$ scf | 1.87E-04 | 8.18E-04 | 6.33E-04 |
| Selenium | 2.40E-05 | lb/$10^6$ scf | 2.13E-06 | 9.35E-06 | 7.23E-06 |
| **Total HAP** | | | **1.68E-01** | **7.35E-01** | **5.69E-01** |

1. Emissions factors for Natural Gas fired boilers from AP-42 Tables 1.4-3 and 1.4-4.

**University of Maryland, College Park**
**NextGen Project Air Permitting**
**Emissions Calculations**
**Potential Emissions**
**One (1) 2,346 bhp Diesel Fired Emergency Generator**

| | |
|---|---|
| **Fuel:** | Ultra low sulfur diesel |
| **Number of Generators:** | 1 |
| **Maximum Hours of Operation (hr/yr):** | 100 |
| **Maximum Generator Rating (kWe):** | 1,500 |
| **Maximum Generator Output (kWm) :** | 1,750 |
| **Maximum Generator Rating (MMBTU/hr) [1]:** | 17.75 |
| **Maximum Fuel Use (gal/hr) @ 100% Load:** | 128.6 |
| **Maximum Fuel Use (Mgal/yr):** | 12.9 |

| Pollutant | Emission Factor | Emission Factor Units | Emission Factor Source | Emissions (lb/hr) | Emissions (tpy) |
|---|---|---|---|---|---|
| ***Criteria:*** | | | | | |
| Particulate Matter - Filt. | Load Dependent | g/kW-hr | Vendor Data - See Appendix F | 0.41 | 0.02 |
| Particulate Matter <10 microns ($PM_{10}$) - Filt+Cond. | 0.0573 | lb/MMBTU | AP-42 Section 3.4, Table 3.4.2 | 1.02 | 0.05 |
| Particulate Matter < 2.5 microns ($PM_{2.5}$) - Filt+Cond. | 0.0573 | lb/MMBTU | Assume that PM2.5 = PM10 | 1.02 | 0.05 |
| Sulfur Dioxide ($SO_2$) [2] | 1.52E-03 | lb/MMBTU | AP-42 Section 3.4, Table 3.4.1 (ULSD = 0.0015% S) | 0.03 | 1.34E-03 |
| Nitrogen Oxides ($NO_X$) | Load Dependent | g/kW-hr | Vendor Data - See Appendix F | 27.01 | 1.35 |
| Volatile Organic Compounds (VOC) | Load Dependent | g/kW-hr | Vendor Data - See Appendix F | 1.62 | 0.08 |
| Carbon Monoxide (CO) | Load Dependent | g/kW-hr | Vendor Data - See Appendix F | 3.09 | 0.15 |
| ***HAP:*** | | | See table below | 0.028 | 1.40E-03 |
| ***GHG [3] :*** | | | | | Metric Tonne/year |
| Carbon Dioxide ($CO_2$) | 73.96 | kg/MMBtu | Table C-1 40 CFR 98, Subpart C | --- | 131.26 |
| Methane ($CH_4$) | 3.00E-03 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | 5.32E-03 |
| Nitrous Oxide ($N_2O$) | 6.00E-04 | kg/MMBtu | Table C-2 40 CFR 98, Subpart C | --- | 1.06E-03 |

1. Heat input per 40 CFR 98 Subpart C Table C-1 (MMBtu/gal): 0.138
2. Diesel sulfur content (15 ppm) 0.0015
3. GHG emissions calculated in accordance with the following equation (Tier 1 approach for units <250 mmbtu/hr where no monthly data is available of the actual HHV) obtained from 40 CFR Part 98, Subpart C:

$CO_2$ or $CH_4$ or $N_2O$ = Fuel * HHV * EF * Conv

Fuel = Mass or volume of the fuel combusted, from company records (mass or volume per year).
HHV = Default high heat value of the fuel from Table C-1 of 40 CFR Part 98, Subpart C.
EF = Fuel-specific default emission factor (kg / mmBtu) for CO2 from Tables C-1 and C-2 of 40 CFR Part 98, Subpart C.
Conv = kg/metric ton conversion 1000 kg/metric tonne

Fuel Consumption at 100% Load = [redacted] (Vendor spec sheet - See Appendix F)
Fuel Consumption at 100% Load = [redacted]
Fuel Consumption at 100% Load = [redacted]
Density of No. 2 Fuel Oil = 7.05 lb/gal (https://www3.epa.gov/ttnchie1/ap42/appendix/appa.pdf)
Heat Input to Engine at 100% Load = 128.6 gal/hr

| | 100% Load | 75% Load | 50% Load | 25% Load | Max (lb/hr) |
|---|---|---|---|---|---|
| Power (kWm) | 1750 | 1313 | 845 | 438 | |
| NOx (g/kWh) | [redacted] | [redacted] | [redacted] | [redacted] | 27.007 |
| CO (g/kWh) | [redacted] | [redacted] | [redacted] | [redacted] | 3.086 |
| HC (g/kWh) | [redacted] | [redacted] | [redacted] | [redacted] | 1.621 |
| PM (g/kWh) | [redacted] | [redacted] | [redacted] | [redacted] | 0.405 |

**ULSD Generator HAP Emissions**

| Pollutant | Emission Factor[1] | Emission Factor Units | Emissions (lb/hr) | Emissions (tpy) |
|---|---|---|---|---|
| Benzene | 7.76E-04 | lb/MMBtu | 1.38E-02 | 6.89E-04 |
| Toluene | 2.81E-04 | lb/MMBtu | 4.99E-03 | 2.49E-04 |
| Xylenes | 1.93E-04 | lb/MMBtu | 3.43E-03 | 1.71E-04 |
| Formaldehyde | 7.89E-05 | lb/MMBtu | 1.40E-03 | 7.00E-05 |
| Acetaldehyde | 2.52E-05 | lb/MMBtu | 4.47E-04 | 2.24E-05 |
| Acrolein | 7.88E-06 | lb/MMBtu | 1.40E-04 | 6.99E-06 |
| Polycyclic Aromatic Hydrocarbons (PAH) | 2.12E-04 | lb/MMBtu | 3.76E-03 | 1.88E-04 |
| **Total HAP** | | | **2.79E-02** | **1.40E-03** |

1. Emissions factors for No. 2 fuel oil fired generators from AP-42 Table 3.4-3 and 3.4-4

# Appendix B. MDE Forms

**[The contents of this appendix have been redacted or removed due to confidential and proprietary vendor specific information.]**

# AIR QUALITY PERMIT TO CONSTRUCT APPLICATION CHECKLIST

| OWNER OF EQUIPMENT/PROCESS | |
|---|---|
| COMPANY NAME: | University of Maryland |
| COMPANY ADDRESS: | 2119A Thomas V. Miller Jr Administration Bldg, 7901 Regents Drive, College Park, MD 20742 |
| **LOCATION OF EQUIPMENT/PROCESS** | |
| PREMISES NAME: | Central Energy Plant |
| PREMISES ADDRESS: | 7743 Baltimore Avenue, College Park, MD 20740 |
| **CONTACT INFORMATION FOR THIS PERMIT APPLICATION** | |
| CONTACT NAME: | Jason Baer |
| JOB TITLE: | Assistant Director, Office of Environmental Affairs |
| PHONE NUMBER: | 202-441-6391 |
| EMAIL ADDRESS: | jbaer123@umd.edu |
| **DESCRIPTION OF EQUIPMENT OR PROCESS** | |
| Installation of steam and power generating equipment at the Central Energy Plant. | |

Application is hereby made to the Department of the Environment for a Permit to Construct for the following equipment or process as required by the State of Maryland Air Quality Regulation, COMAR 26.11.02.09.

Check each item that you have submitted as part of your application package.

☒ Application package cover letter describing the proposed project

☒ Complete application forms (Note the number of forms included or NA if not applicable.)

No. N/A Form 5
No. N/A Form 5T
No. N/A Form 5EP
No. N/A Form 6
No. N/A Form 10
No. 1 Form 11
No. N/A Form 41
No. 1 Form 42
No. 1 Form 44

☒ Vendor/manufacturer specifications/guarantees

☒ Evidence of Workman's Compensation Insurance

☒ Process flow diagrams with emission points

☒ Site plan including the location of the proposed source and property boundary

☒ Material balance data and all emissions calculations

☐ Material Safety Data Sheets (MSDS) or equivalent information for materials processed and manufactured.

☒ Certificate of Public Convenience and Necessity (CPCN) waiver documentation from the Public Service Commission (1)

☐ Documentation that the proposed installation complies with local zoning and land use requirements (2)

(1) Required for emergency and non-emergency generators installed on or after October 1, 2001 and rated at 2001 kW or more.

(2) Required for applications subject to Expanded Public Participation Requirements.

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Blvd ▪ Baltimore, Maryland 21230
(410) 537-3230 ▪ 1-800-633-6101 ▪ www.mde.state.md.us

**Air and Radiation Management Administration ▪ Air Quality Permits Program**

## APPLICATION FOR FUEL BURNING EQUIPMENT

Permit to Construct ☑ Registration Update ☐ Initial Registration ☐

**1A. Owner of Equipment/Company Name**
University of Maryland

Mailing Address/Street
2119A Thomas V. Miller Jr Administration Bldg, 7901 Regents Drive

City College Park State MD Zip Code 20742

Telephone Number 301-405-6214

Print Name/Title
Charles Robert Reuning, Interim Vice President and Chief Administrative Officer

Signature: Charles R Reuning Date: 12/13/2024

**DO NOT WRITE IN THIS BOX**

**2. Registration Number**
County No. (1-2) | Premises No. (3-6)
Registration Class (7) | Equipment No. (6-11)
Data Year (12-13) | Application Date

**1B. Equipment Location (if different from above give Street Number and Name, City, State, Zip and Telephone Number):**
Central Energy Plant, 7743 Baltimore Avenue, College Park, MD 20740

Premises Name (if different from above):

**3. Status**

| A= New Equipment<br>B= Modification to Existing Equipment<br>C= Existing Equipment | Status (15) | New Construction Began (MM/YY) (16-19) | New Construction Completed (MM/YY) (20-23) | Existing Initial Operation (MM/YY) (20-23) |
|---|---|---|---|---|
| | A | 1025 | 0926 | |

**4. Describe this Equipment (Make, Model, Features, Manufacturer, etc.):**
Two (2) 182.09 MMBtu/hr Rentech Boilers with burners capable of being turned down to 9.25 MMBtu/hr (Pilot Mode), ZEECO low-NOx burners and FGR

**5. Workmen's Compensation Coverage:** Binder/Policy Number: 902317

Company Name: IWIF Expiration Date N/A

**NOTE: Before a Permit to Construct may be issued by the Department, the applicant must provide the Department with proof of worker's compensation coverage as required under Section 1-202 of the Worker's Compensation Act.**

**6. Number of Pieces of Identical Equipment to be Registered/Permitted at this Time:** 2 (Boilers)

**7. Person Installing this Equipment (if different from above give Name/Title, Company Name, Mailing Address and Telephone Number):**
Esai Dominguez, EPC Project Manager, Kiewit Corporation, 7743 Baltimore Ave, Bldg 001, College Park, Maryland 20740; 402-630-0824

**8. Major Activity, Product or Service of Company at this Location:**
Steam Generation for the Campus

**9. Control Devices Associated with this Equipment**

None ■ (24-0) | Simple/Multiple Cyclones ☐ (24-1) | Spray/Adsorb Tower ☐ (24-2) | Venturi Scrubber ☐ (24-3) | Carbon Adsorber ☐ (24-4) | Electrostatic Precipitator ☐ (24-5) | Bag-house ☐ (24-6)

Thermal/Catalytic Afterburner ☐ (24-7) | Dry Scrubber ☐ (24-8) | Other ☐ (24-9) Describe

## 10. Annual Fuel Consumption for this Equipment Only

Annual consumption of oil and natural gas are not intended to be permit limits. For each pollutant, UMD is requesting umbrella limits including the two boilers, the combustion turbine and duct burner.

| OIL-1000 GALLONS | SULFUR % | GRADE | NATURAL GAS-1000 FT$^3$ | LP GAS-100 GALLONS | GRADE |
|---|---|---|---|---|---|
| 121.79 | 0.0 | 2 | 1632748 | | |
| 26-31 | 32-33 | 34 | 35-41 | 42-45 | |

Note: ULSD

Note: Natural gas consumption is for both boilers in main and pilot mode.

| COAL- TONS | SULFUR % | ASH% | WOOD-TONS | MOISTURE % |
|---|---|---|---|---|
| | | | | |
| 46-52 | 53-55 | 56-58 | 59-63 | 64-65 |

OTHER FUELS _____ (Specify Type) [ ] 66-1 ANNUAL AMOUNT CONSUMED _____ (Specify Units of Measure)

OTHER FUEL _____ (Specify Type) [ ] 66-2 ANNUAL AMOUNT CONSUMED _____ (Specify Units of Measure)

**1= Coke 2= COG 3=BFG 4=Other**

## 11. Operating Schedule (for this equipment)

Comfort/Space Heating Only [ ] 67-1

Process Heat Only [■] 67-2

Percent Process Heat [100] 68-69

Oil Burner Type [3] 70 (1=Pressure Gun 2=Air Atomizer 3=Steam Atomizer 4=Rotary Cup)

Coal Burner Type [ ] 71 (1=Cyclone 2=Stoker 3=Pulverized 4=Hand Fired)

Days Per Week [7] 72

Days Per Year [365] 73-75

SEASONAL VARIATION IN OPERATION (PERCENT):

None [■] 76 Winter [ ] 77-78 Spring [ ] 79-80 Summer [ ] 81-82 Fall [ ] 83-84

## 12. Exhaust Stack Information

| Height Above Ground (ft) | Inside Diameter at Top (inches) | Exit Temperature (°F) | Exit Velocity (ft/sec) |
|---|---|---|---|
| 85 | 58 | 304 | 50 |
| 86-88 | 89-91 | 92-95 | 96-98 |
| | | 100% load and natural gas firing | 100% load and natural gas firing |

## 13. Total Stack Emissions (for this equipment only) in Pounds Per Operating Day

Refer to Appendix A for emissions

| Particulate Matter | Oxides of Sulfur | Oxides of Nitrogen |
|---|---|---|
| 99-104 | 105-110 | 111-116 |

| Carbon Monoxide | Volatile Organic Compounds | PM-10 |
|---|---|---|
| 117-122 | 123-128 | 129-134 |

## 14. Method Used to Determine Emissions (1=Estimate, 2=AP42, 3=Stack Test, 4=Other Emission Factor)

| TSP | SOx | NOx | CO | VOC | PM10 |
|---|---|---|---|---|---|
| 2 | 2 | 4 | 4 | 2 | 2 |
| 165 | 166 | 167 | 168 | 169 | 170 |

## 15. What is the Maximum Rated Heat Input of this Unit (Million Btu/hr)?

182.09 (NG) and 175.08 (ULSD)

Air and Radiation Management Administration Use Only

16. Date Rec'd Local _____ Date Rec'd State _____

Return to Local Jurisdiction Date _____ By _____

Rev'd by Local Jurisdiction: Date _____ By _____ Rev'd by State: Date _____ By _____

Acknowledgement Sent by State: Date _____ By _____

| 17. Inventory Date (MM/YY) | SCC Code | 18. Annual Operating Rate | Maximum Design Hourly Rate |
|---|---|---|---|
| | | | |
| 171-174 | 178-185 | 186-192 | 193-199 |

| Permit to Operate Month | Transaction Date | Staff Code | VOC | SIP Code |
|---|---|---|---|---|
| | | | | |
| 200-201 | 202-207 | 208-210 | 211 212 | 213 214 |

Regulation Code [ ] 215-218 Confidentiality [ ] 219

Point Description [ ] 220-238 Action [ ] 239 (A: Add C: Change)

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Management Administration / Air Quality Permits Program
1800 Washington Boulevard, STE 720 Baltimore, MD 21230-1720
(410) 537-3230 ●1-800-633-6101 ● www.mde.state.md.us

*Mail application to*
**MDE/ARMA**
**1800 Washington Blvd, Suite 720**
**Baltimore, MD 21230-1720**

*Don't forget to:*
*✓Sign the application*
*✓Include vendor literature*

Air Quality Permit to Construct & Registration Application for

# INTERNAL COMBUSTION ENGINES

(Electrical Power Generators, Power Equipment, Fire Protection Pumps)

**1) Applicability**

*You must check off one the following items to use this application form*

☑ Electrical power generation (off grid, base load, peak, load shaving,, etc)
- Use MDE Form 42 for emergency use only generators

☐ Power equipment (hydraulic, mechanical, etc)
☐ Fire protection pump

***For electrical power generators only**, you must check off one the following items to use this application form*

☑ I have a CPCN Exemption from the Public Service Commission for this generator (contact the Public Service Commision at 410.767.8131)
☐ This generator was installed before October 1, 2001 and I do not need a CPCN Exemption

**2) Business/Institution/Facility where the engine will be located** ☐ Check if this is a federal facility

Name: University of Maryland Phone: 202-441-6391

Street Address: 7743 Baltimore Avenue

City: College Park State: MD Zip Code: 20740 County: Prince George's

**3) Owner/Operator of the engine** (if different than above)

Name: University of Maryland Phone: 301-405-6214

Mailing Address: 2119A Thomas V. Miller Jr Administration Bldg, 7901 Regents Drive

City: College Park State: MD Zip Code: 20742

**4) Installer** ☐ Check if installer is applying for permit. If checked, complete the following:

Name: Esai Dominguez, Kiewit Corporation Phone: 402-630-0824

Mailing Address: 7743 Baltimore Ave, Bldg 001

City: College Park State: MD Zip Code: 20740

**5) Engine Information**

| Installation Date | Engine Manufacturer & Model | Horsepower | Manufacture Date | Fuel Type |
|---|---|---|---|---|
| TBD | Cleaver Books MF 5(SS)-93 HRSG | 92 MMBtu/hr | In progress | NG |
| TBD | Solar Titan 130 Turbine | 23,470 hp | In progress | NG / ULSD |

NG = Natural Gas
ULSD = Ultra Low Sulfur Diesel

**6) Operating Information**

Intended use description: (Examples, "a portable generator at a construction site" or "peak shaving with the emergency generator", etc)

Steam and power generation plant for the University of Maryland

| Hours per day | Hours per year | |
|---|---|---|
| Varies | Approx. 8352 | These are the projected annual hours of operation for the combustion turbine and the duct burner (each). This is not intended to be an operating limit. |

**7) Required Attachments**

(Check that they are attached)

- ☑ Vendor literature
- ☑ CPCN Exemption from the Public Service Commission
  - Electrical generators only
  - Not needed for generators installed before October 1, 2001

**8) Workers Compensation** (Environmental article §1-202)

Workers insurance policy or binder number: IWIF Policy [redacted] See Attached

☐ Check if self employed or otherwise exempt from this requirement

"I CERTIFY UNDER PENALTY OF LAW THAT THE INFORMATION SUBMITTED IN THIS REQUEST FOR COVERAGE IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

| Owners Signature | Printed Name & Title | Date |
|---|---|---|
| [signature] | Charles Robert Reuning, Interim Vice President and Chief Administrative Officer | 12/13/2024 |

**LEAVE BLANK, MDE use only**

☐ Permit
☐ Registration (Less than 1,000 brake horsepower & installed prior to 11/24/03)

Permit/Registration Number: _____ - ___ - _____ - _____

AI: _____

| | SOx | Nox | CO | VOC | PM | PM-10 |
|---|---|---|---|---|---|---|
| Emissions Stack | | | | | | |
| Fugitive | | | | | | |

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Management Administration ● Air Quality Permits Program
1800 Washington Boulevard ● Baltimore, Maryland 21230
(410)537-3230 ● 1-800-633-6101● www.mde.state.md.us

***Mail application to***

MDE/ARMA
1800 Washington Blvd, Suite 720
Baltimore, MD 21230-1720

Air Quality Permit to Construct & Registration Application for

## EMERGENCY GENERATOR

**You must check off all of the following items to be able to use this application form**

- [■] This generator is a dedicated emergency backup generator, and will not be used for peak or load shaving.
- [■] This generator is powered by an internal combustion engine, not a turbine
- [■] This generator's engine is at least 500 brake horsepower (373 kilowatts)
  (Smaller emergency engines do not need a permit)

AND

**You must check off one of the following items to be able to use this application form**

- [■] I do not need a CPCN Exemption because the generator is rated at 2000 kW or less
- [ ] I do not need a CPCN Exemption because the generator was installed before October 1, 2001
- [ ] I have a CPCN Exemption from the Public Service Commission for this generator
  (Contact the Public Service Commission at 410.767.8131)

**1) Business/Institution/Facility where the equipment will be located** [ ] **Check if this is a federal facility**

| Business/Institution/Facility Name: | | | Phone: |
|---|---|---|---|
| University of Maryland | | | 202-441-6391 |
| **Contact Person's Name:** | | **Email Address:** | |
| Jason Baer | | jbaer123@umd.edu | |
| **Street Address:** | | | |
| 7743 Baltimore Avenue | | | |
| **City:** | **State:** | **Zip Code:** | **County:** |
| College Park | MD | 20740 | Prince George's |

**2) Owner** [■] **Check if different from above. If checked, complete the following:**

| Name: | | Phone: |
|---|---|---|
| University of Maryland | | 301-405-6214 |
| **Mailing Address:** | | |
| 2119A Thomas V. Miller Jr Administration Bldg, 7901 Regents Drive | | |
| **City:** | **State:** | **Zip Code:** |
| College Park | MD | 20742 |

**3) Installer** [■] **Check if different from above. If checked, complete the following:**

| Contact Name: | Contact Company: | Phone: |
|---|---|---|
| Esai Dominguez | Kiewit Corporation | 402-630-0824 |

**4) Equipment Information**

Manufacturer / Model: Kohler 1600REOZMD

Installation Date: 2025

☐ Yes ■ No This generator will be operated as part of an emergency demand response program.

| Number Installed: | Number Removed: | Stack Height (feet, estimated): | Stack Diameter (inches, estimated): |
|---|---|---|---|
| 1 | N/A | 16 | 10 |

| Engine Make / Model: | EPA Tier Certified: | Engine Horsepower : | Engine Manufacture Date: | Fuel Type: |
|---|---|---|---|---|
| Mitsubishi, S16R-Y2PTAW-1 | 2 | 2,346 | 2024 | USLD |

**5) Required Attachments** (check that you've included them)

■ Vendor literature

■ CPCN Exemption from the Public Service Commission
(not needed for generators installed before October 1, 2001, or rated at 2000 kW or less)

**6) Workers Compensation Information (Environmental Article §1-202)**

Workers insurance policy or binder number: IWIF Policy [redacted] See Attached

☐ Check if self-employed or otherwise exempt from this requirement

"I CERTIFY UNDER PENALTY OF LAW THAT THE INFORMATION SUBMITTED IN THIS REQUEST FOR COVERAGE IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

| Owners Signature | Printed Name and Title | Date |
|---|---|---|
| [signature] | Charles Robert Reuning, Interim Vice President and Chief Administrative Officer | 12/13/2024 |

**LEAVE BLANK**
**MDE USE ONLY**

☐ Permit
☐ Registration (Less than 1,000 brake horsepower & installed prior to 11/24/03)

Permit/Registration Number: _____ - _____ - _____ - _____

AI: _____

Emissions

| | Sox | Nox | CO | VOC | PM | PM-10 |
|---|---|---|---|---|---|---|
| Stack | | | | | | |
| Fugitive | | | | | | |

# Appendix C. Environmental Justice Analysis

# MDE Screening Report

## Area of Interest (AOI) Information

Sep 16 2024 16:43:02 Eastern Daylight Time

# A4 Portrait

1:36,112

0 0.23 0.45 0.9 mi

0 0.38 0.75 1.5 km

MDE Final EJ Score (%ile score)

- 0% - 24.9th %ile
- 25% - 49.9th %ile
- 50% - 74.9th %ile
- 75% - 100th %ile

MDE, OS, OIMT, University of Maryland, DCGIS, M-NCPPC, MNCPPC, VGIN, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

## Summary

| Name | Count | Area(mi²) | Length(mi) |
|---|---|---|---|
| MDE Final EJ Score (%ile score) | 1 | N/A | N/A |
| Overburdened Communities Combined Score | 1 | N/A | N/A |
| Overburdened Pollution Environmental Score (%ile score) | 1 | N/A | N/A |
| Overburdened Exposure Score (%ile score) | 1 | N/A | N/A |
| Overburdened Sensitive Population (%ile score) | 1 | N/A | N/A |
| Socioeconomic/Demographic Score 2020 (Percentile score) (Underserved Community) | 1 | N/A | N/A |
| Air Emissions Facilities | 0 | N/A | N/A |
| Sulfur Dioxide (2010) | 0 | N/A | N/A |
| Ozone (2015) | 1 | N/A | N/A |
| Fine Particles (2012) | 1 | N/A | N/A |
| Biosolids FY 2020 and Current Permit Details | 0 | N/A | N/A |
| Biosolids FY2010 - 2014 Permit Details | 0 | N/A | N/A |
| Biosolids FY2009 Expired Permit Details | 0 | N/A | N/A |
| Biosolids FY 2020 and Current Permits Distribution By Acreage | 1 | N/A | N/A |
| Biosolids FY2015 - 2019 Permits Distribution By Acreage | 1 | N/A | N/A |
| Biosolids FY2010 - 2014 Permits Distribution By Acreage | 1 | N/A | N/A |
| Biosolids FY2009 Permits Expired Distribution By Acreage | 1 | N/A | N/A |
| Biosolids FY 2020 and Current Permit Distribution By Percent Coverage | 1 | N/A | N/A |
| Biosolids FY2015 - 2019 Permit Distribution By Percent Coverage | 1 | N/A | N/A |
| Biosolids FY2010 - 2014 Permit Distribution By Percent Coverage | 1 | N/A | N/A |
| Biosolids FY2009 Expired Permit Distribution By Percent Coverage | 1 | N/A | N/A |
| Concentrated Animal Feeding Operations (CAFOs) | 0 | N/A | N/A |
| Composting Facilities | 0 | N/A | N/A |
| Food Scrap Acceptors | 0 | N/A | N/A |
| Landfills | 0 | N/A | N/A |
| Correctional Facilities | 0 | N/A | N/A |
| Industrial Food Suppliers | 0 | N/A | N/A |

| | | | |
|---|---|---|---|
| Residential Colleges | 0 | N/A | N/A |
| Non-Residential Colleges | 0 | N/A | N/A |
| Hospitals | 0 | N/A | N/A |
| High Schools | 0 | N/A | N/A |
| Grocery Stores | 0 | N/A | N/A |
| 10 Miles from Landfill | 3 | N/A | N/A |
| 10 Miles from Composting Facility | 2 | N/A | N/A |
| General Composting Facilities Tier 2 (MD) | 0 | N/A | N/A |
| Commercial Anaerobic Digester (MD) | 0 | N/A | N/A |
| Out of State Facilities | 0 | N/A | N/A |
| 30 mile buffer (Maryland) | 3 | N/A | N/A |
| 30 Mile Buffer (Out of State) | 0 | N/A | N/A |
| Land Restoration Facilities | 0 | N/A | N/A |
| Determinations (points) | 0 | N/A | N/A |
| Determinations (areas) | 0 | N/A | N/A |
| Entities | 0 | N/A | N/A |
| Active Coal Mine Sites | 0 | N/A | N/A |
| Historic Mine Facilities | 0 | N/A | N/A |
| All Permitted Solid Waste Acceptance Facilities | 0 | N/A | N/A |
| Municipal Solid Waste Acceptance Facilities | 0 | N/A | N/A |
| Maryland Dam Locations | 0 | N/A | N/A |
| Maryland Pond Locations | 0 | N/A | N/A |
| Surface Water Intakes | 0 | N/A | N/A |
| Wastewater Discharge Facilities | 0 | N/A | N/A |
| Drinking Water | 0 | N/A | N/A |
| Clean Water | 0 | N/A | N/A |

## MDE Final EJ Score (%ile score)

| # | Census tract identifier | Geographic Area Name | Total Population | Final EJ Score Percent (for this tract) | Final EJ Score Percentile (Distribution across Maryland) | Area(mi²) |
|---|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 7069 | 35.99 | 81.75 | N/A |

## Overburdened Communities Combined Score

| # | GEOID20 | Geographic_Area_Name | TotalPop | Overburd_Exposure_Percent | Overburd_Exposure_Percentile |
|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 7,069 | 48.41 | 71.84 |

| # | Overburd_Poll_Enviro_Percent | Overburd_Poll_Enviro_Percentile | Sensitive_Population_Percent | Sensitive_Population_Percentile | OverburdenedAllPercent | OverburdenedAllPercentile | Area(mi²) |
|---|---|---|---|---|---|---|---|
| 1 | 17.01 | 87.15 | 54.55 | 37.94 | 71.29 | 93.85 | N/A |

## Overburdened Pollution Environmental Score (%ile score)

| # | GEOID20 | Geographic_Area_Name | RentalsOccupiedPre79Percent | Percentile | PercentRMP |
|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 19.16 | 85.51 | 4.30 |

| # | PercentRMPEJ | PercentHazWaste | PercentHazWasteEJ | PercentSuperFundNPL | PercentSuperFundNPLEJ |
|---|---|---|---|---|---|
| 1 | 29.31 | 21.62 | 52.45 | 13.64 | 54.32 |

| # | PercentHazWW | PercentHazWWEJ | BrownFPercent | Percentile_1 | PercentPowerPlants |
|---|---|---|---|---|---|
| 1 | 85.30 | 89.27 | 0.00 | 0.00 | 9.09 |

| # | Percentile_12 | PercentCAFOS | Percentile_12_13 | PercentActiveMines | Percentile_12_13_14 |
|---|---|---|---|---|---|
| 1 | 95.42 | 0.00 | 0.00 | 0.00 | 0.00 |

| # | PollutionEnvironmentalPercent | PollnEnvironmentalPercentile | Area(mi²) |
|---|---|---|---|
| 1 | 17.01 | 87.15 | N/A |

## Overburdened Exposure Score (%ile score)

| # | GEOID20 | Geographic_Area_Name | Total_Pop | PercentNATA_Cancer | Percentile_NATA_Cancer |
|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 7,069.00 | 60.00 | 50.49 |

| # | PercentNATA_Resp_HI | Percentile_NATA_Resp_HI | PercentNATA_Diesel | Percentile_NATA_Diesel | PercentNATA_PM25 |
|---|---|---|---|---|---|
| 1 | 80.00 | 56.31 | 39.41 | 50.24 | 96.58 |

| # | PercentileNATA_PM25 | PercentOzone | PercentileOzone | PercentTraffic | PercentileTraffic |
|---|---|---|---|---|---|
| 1 | 47.62 | 94.41 | 45.89 | 16.85 | 55.05 |

| # | PercentTRI | PercentileTRI | PercentHazWasteLF | Percentile_HazWasteLF | PollutionExposurePercent | PollutionExposurePercentile | Area(mi²) |
|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 48.41 | 71.84 | N/A |

## Overburdened Sensitive Population (%ile score)

| # | GEOID20 | Geographic_Area_Name | PerAstma | PercentileAst | PerMyo |
|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 26.60 | 52.36 | 27.10 |

| # | PercentileMyo | PerLow | PercentileLow | PercentBroad | PercentileBroad |
|---|---|---|---|---|---|
| 1 | 50.92 | 84.30 | 98.70 | 19.60 | 98.36 |

| # | PercentSens | PercentileSens | Area(mi²) |
|---|---|---|---|
| 1 | 39.40 | 75.09 | N/A |

## Socioeconomic/Demographic Score 2020 (Percentile score) (Underserved Community)

| # | Census tract identifier | Geographic Area Name | Total Population | Percent Poverty | Percent Minority |
|---|---|---|---|---|---|
| 1 | 24033807000 | Census Tract 8070, Prince George's County, Maryland | 7,069 | 41.29 | 60.96 |

| # | Percent Limited English Proficiency | Demographic Score (Percent for this tract) | Demographic Score (Percentile Distribution acoss Maryland) | Area(mi²) |
|---|---|---|---|---|
| 1 | 15.16 | 39.13 | 80.53 | N/A |

## Ozone (2015)

| # | STATEFP10 | COUNTYFP10 | COUNTYNS10 | GEOID10 | NAME10 |
|---|---|---|---|---|---|
| 1 | 24 | 033 | 01714670 | 24033 | Prince George's |

| # | Ozone NAA Area | 8-Hr Ozone (2015) Designation | 8-HR Ozone (2015) Classification | 8-Hr Ozone (2015) Status | Area(mi²) |
|---|---|---|---|---|---|
| 1 | Washington DC-MD-VA | Nonattainment | Moderate | *No Data* | N/A |

## Fine Particles (2012)

| # | STATEFP10 | COUNTYFP10 | COUNTYNS10 | GEOID10 | NAME10 | PM2.5 (2012) Status | Area(mi²) |
|---|---|---|---|---|---|---|---|
| 1 | 24 | 033 | 01714670 | 24033 | Prince George's | Attainment/Unclassifiable | N/A |

## Biosolids FY 2020 and Current Permits Distribution By Acreage

| # | County Name | FY2020andAfter | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 277.10 | N/A |

## Biosolids FY2015 - 2019 Permits Distribution By Acreage

| # | County Name | FY2015to2019 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 170.20 | N/A |

## Biosolids FY2010 - 2014 Permits Distribution By Acreage

| # | County Name | FY2010to2014 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 81.95 | N/A |

## Biosolids FY2009 Permits Expired Distribution By Acreage

| # | County Name | FY2009 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | *No Data* | N/A |

## Biosolids FY 2020 and Current Permit Distribution By Percent Coverage

| # | County Name | FY2020andAfter | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 277.10 | N/A |

## Biosolids FY2015 - 2019 Permit Distribution By Percent Coverage

| # | County Name | FY2015to2019 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 170.20 | N/A |

## Biosolids FY2010 - 2014 Permit Distribution By Percent Coverage

| # | County Name | FY2010to2014 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | 81.95 | N/A |

## Biosolids FY2009 Expired Permit Distribution By Percent Coverage

| # | County Name | FY2009 | Area(mi²) |
|---|---|---|---|
| 1 | Prince George's | *No Data* | N/A |

## 10 Miles from Landfill

| # | County | Type | Facility_N | ADDRESS | FILL |
|---|---|---|---|---|---|
| 1 | PRINCEGEORGE'S | WPT | Recycle OnePF&TS | 4700 Lawrence Street, Hyattville MD 20781. | 1.8 |
| 2 | PRINCEGEORGE'S | WPT | Sheriff RoadPF&TS | 5800 Sheriff Road, Fairmont Heights MD 20743. | - |
| 3 | PRINCEGEORGE'S | WPF | Sun ServicesPF | 11210 Somerset Avenue, Beltsville MD 20705 | 4.3 |

| # | SITE__ACRE | AI_No_ | Owner_Type | MD_GRID__E | PERMITNUMB | EXPIRATION | Area(mi²) |
|---|---|---|---|---|---|---|---|
| 1 | 2.85 | 28,954.00 | PRI | 818 /400 | 2010-WPT-0647 | 9/14/2019, 8:00 PM | N/A |
| 2 | 1.50 | 20,211.00 | PRI | 826 /391 | 2012-WPT-0218 | 2/20/2018, 7:00 PM | N/A |
| 3 | 0.00 | 21,791.00 | PRI | 828/438 | 2009-WPF-0639 | 4/5/2016, 8:00 PM | N/A |

## 10 Miles from Composting Facility

| # | County | Facility | Address | Accepts_Fo | Location_o | Area(mi²) |
|---|---|---|---|---|---|---|
| 1 | *No Data* | City of College Park | 9217 51st Avenue, College Park, MD 20740 | No | 9217 51st Ave, College Park, MD 20740 | N/A |
| 2 | *No Data* | County Nursery Inc. | 3330 Spencerville Road, Burtonsville, MD | No | 3330 Spencerville Rd, Burtonsville, MD 20866 | N/A |

## 30 mile buffer (Maryland)

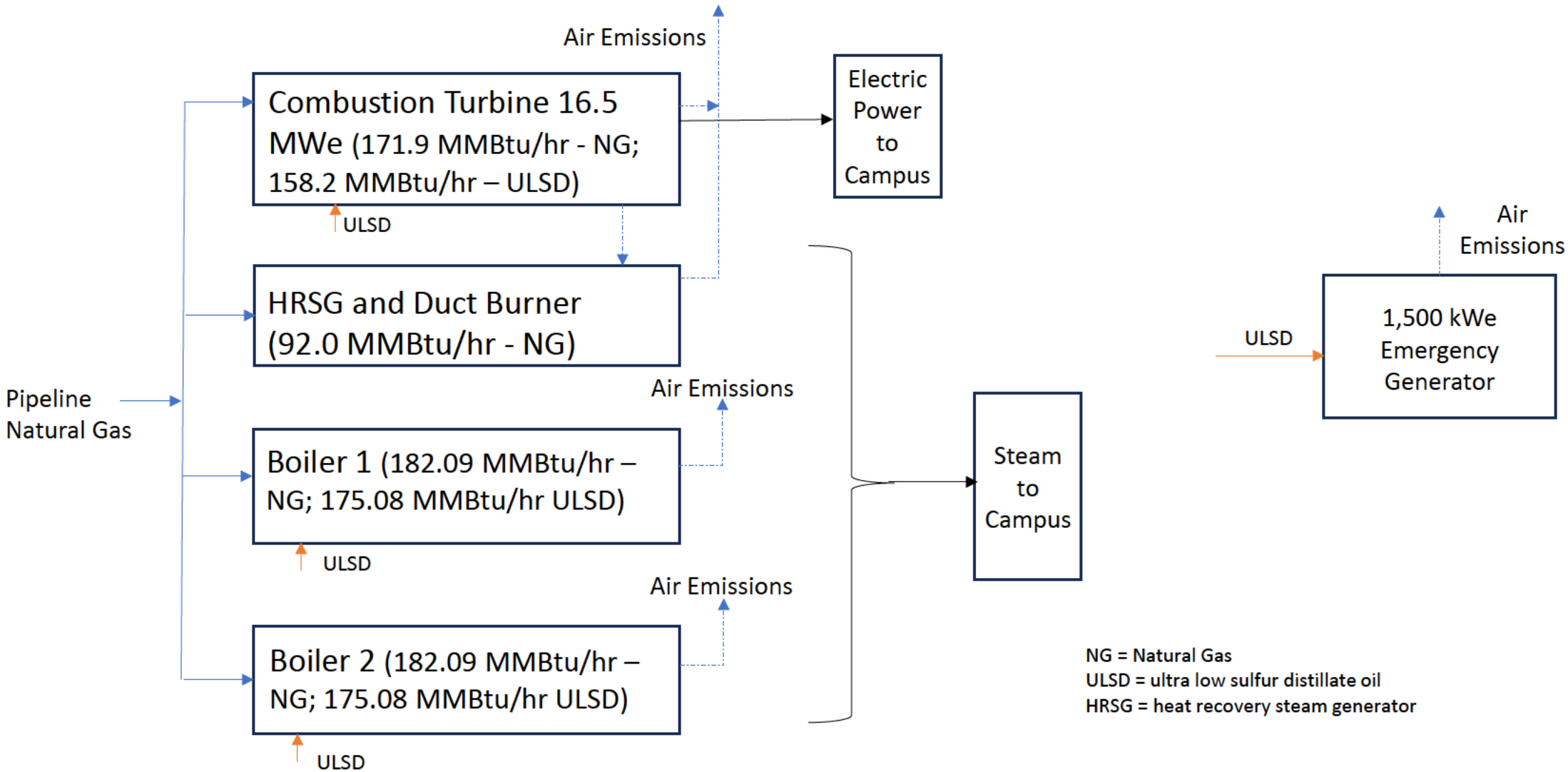
| # | Facility_Name_1 | Facility_Contact_1 | Contact_Phone | Contact_Email_1 | Contact_2 |
|---|---|---|---|---|---|
| 1 | Bioenergy DEVCO - Maryland Organics Recycling Facility | Vinnie Bevivino | (202) 360-1805 | Vbevivino@bioenergydevco.com | Mike Manna |
| 2 | Composting Facility at Alpha Ridge Landfill | Bureau of Environmental Services | (410) 313-6444 | *No Data* | *No Data* |
| 3 | Prince George's County Organics Composting Facility | Angie Webb, Recycling Coordinator | (240) 904-4630 | awebb@menv.com | *No Data* |

| # | Contact_2_Phone | Contact_2_Email | URL | Area(mi²) |
|---|---|---|---|---|
| 1 | (609) 744-2819 | mmanna@bioenergydevco.com | https://www.bioenergydevco.com/maryland-organics-recycling-facility/ | N/A |
| 2 | *No Data* | *No Data* | https://www.howardcountymd.gov/public-works/composting-facility | N/A |
| 3 | *No Data* | *No Data* | https://www.princegeorgescountymd.gov/583/Organics-Composting-Facility | N/A |

© MDE

# Appendix D. Process Flow Diagram

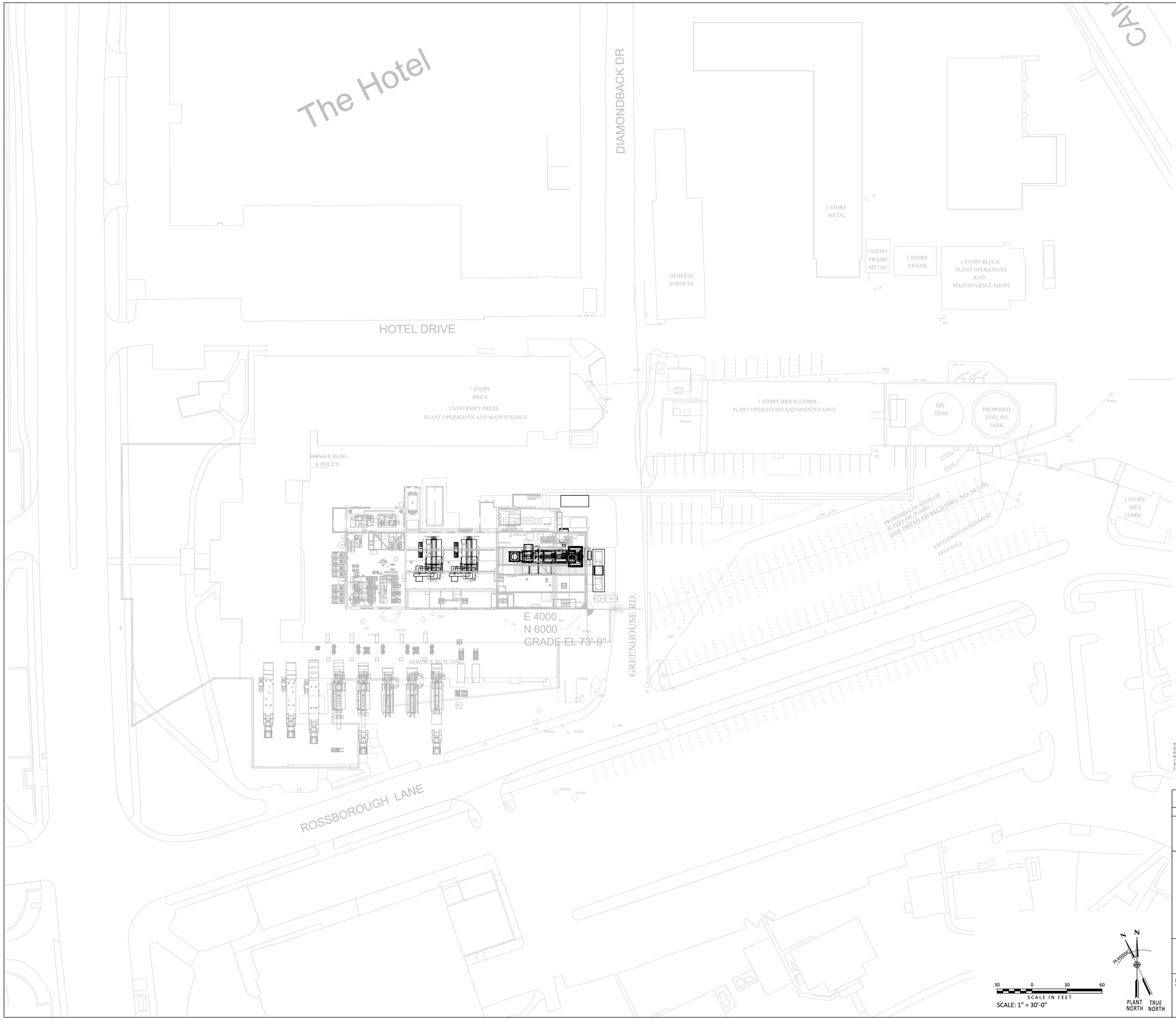
# University of Maryland, College Park Central Heating Plant
# NextGen Project
# Appendix D – Simplified Process Flow Diagram



# Appendix E. Site Plant

NOTES:

| PLANT COORDINATES | MARYLAND STATE PLANE , NAD 83 |
|---|---|
| E. 4000.000' | E. 1330713.801' |
| N. 6000.000' | N. 480351.888' |




— PRELIMINARY —
NOT FOR CONSTRUCTION

CONFIDENTIAL

THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY REQUIREMENT AND SUBJECT THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

| REV | DESIGN BY | CHECKED BY | DATE |
|---|---|---|---|
| A | A. GOODWIN | N. YALUNG | 09-26-24 |
| | ISSUED FOR INFORMATION | | |

UMD NEXTGEN PROGRAM CAMPUS ENERGY
UNIVERSITY OF MARYLAND

Kiewit

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND;
LICENSE NO. _____, EXPIRATION DATE: _____

CEP STACK LOCATION

| | |
|---|---|
| ENGINEER/DESIGN ORIGINATOR | N. YALUNG |
| LEAD ENG | R. ANDERSON |
| ENG MGR | J. BOXLER |
| PROJ MGR | C. WAGNER |

DRAWING NUMBER

SKM-20035769-PP-002

30 0 30 60
SCALE IN FEET
SCALE: 1" = 30'-0"

PLANT NORTH
TRUE NORTH

# Appendix F. Vendor Equipment Specifications

**[The contents of this appendix have been redacted or removed due to confidential and proprietary vendor specific information.]**

# Boiler
# Vendor Data

# HRSG
# Vendor Data

# Combustion Turbine Vendor Data

# Diesel Generator Vendor Data

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
## 2024 MODEL YEAR
## CERTIFICATE OF CONFORMITY
## WITH THE CLEAN AIR ACT

**OFFICE OF TRANSPORTATION AND AIR QUALITY**
**ANN ARBOR, MICHIGAN 48105**

**Certificate Issued To:** **Mitsubishi Heavy Industries Engine & Turbocharger, Ltd.**
(U.S. Manufacturer or Importer)

**Certificate Number: RMVXL65.4BBA-006**

**Effective Date:** 07/10/2023

**Expiration Date:** 12/31/2024

**Byron J. Bunker, Division Director**
**Compliance Division**

**Issue Date:** 07/10/2023

**Revision Date:** N/A

**Model Year:** 2024
**Manufacturer Type:** Original Engine Manufacturer
**Engine Family:** RMVXL65.4BBA

**Mobile/Stationary Indicator:** Stationary
**Emissions Power Category:** 560<kW<=2237
**Fuel Type:** Diesel
**After Treatment Devices:** No After Treatment Devices Installed
**Non-after Treatment Devices:** Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

# Appendix G. CPCN Exemption Approval

COMMISSIONERS

FREDERICK H. HOOVER, JR.
CHAIR

MICHAEL T. RICHARD
KUMAR P. BARVE
BONNIE A. SUCHMAN

STATE OF MARYLAND

PUBLIC SERVICE COMMISSION

**#4, 9/4/24 AM; ML#s 309882 and 311910, IR-7189**

September 5, 2024

Susan Corry
University of Maryland College Park
7901 Regents Drive
2119 Thomas V. Miller Jr. Administration Bldg.
College Park, MD 20742-5035
scorry@umd.edu

Dear Ms. Corry:

The Commission has reviewed the request for a Certificate of Public Convenience and Necessity Exemption filed on May 24, 2024 by University of Maryland College Park to construct a natural gas and oil-fired electric generator. Additional information was filed on August 26, 2024.

After considering this matter at the September 4, 2024 Administrative Meeting, the Commission approved the application.

By Direction of the Commission,

*/s/ Andrew S. Johnston*

Andrew S. Johnston
Executive Secretary

ASJ/st

# Appendix H. Workman’s Compensation Insurance

**[The contents of this appendix have been redacted or removed due to confidential and proprietary vendor specific information.]**

# CONFIRMATION AND CERTIFICATE OF WORKERS' COMPENSATION COVERAGE FOR THE STATE OF MARYLAND

| STATE OF MARYLAND AGENCY: | CERTIFICATE HOLDER: |
|---|---|
| University of Maryland College Park<br>1000 Hilltop Circle<br>College Park, MD 20742 | Maryland Department of the Environment<br>1800 Washington Blvd., Suite 720<br>Baltimore, MD 21230 |

| AGENCY NUMBER: | CONFIRMATION PERIOD: | DATE ISSUED: |
|---|---|---|
| [redacted] | 12/5/2024 to 12/5/2025 | 12/5/2024 |

This is to certify that the State Agency named above is provided workers' compensation coverage through the State of Maryland. The Injured Workers Insurance Fund (hereinafter, "IWIF") is the administrator of benefits for the State of Maryland's Self-Insured Workers' Compensation Program for State Employees in accordance with Maryland Annotated Code, Labor and Employment, §§ 10-102 - 10-108.

This document certifies that pursuant to the terms of the Claims Administration Services Agreement between the State of Maryland and IWIF, IWIF renders payment of workers' compensation benefits, as required by Title 9 of the Labor and Employment Article of the Maryland Annotated Code, to the employees of the State of Maryland.

This notification is issued as a matter of information only and confers no rights upon the Certificate Holder. Further, it does not amend, extend, or alter the terms of the Claims Administration Services Agreement between IWIF and the State of Maryland.

Should IWIF cease its claims administration services for the State of Maryland, we will endeavor to mail 30 days written notice to Certificate Holder. Failure to do so shall impose no obligation or liability of any kind upon the Injured Workers Insurance Fund, or its representatives.

Lyndsey B Meninger

Lyndsey Beidle Meninger, Esq.
President, Injured Workers Insurance Fund

# Appendix I. Public Outreach

BEFORE THE PUBLIC SERVICE COMMISSION OF THE
STATE OF MARYLAND

| | | |
|---|---|---|
| IN THE MATTER OF THE APPLICATION | ) | |
| OF THE UNIVERSITY OF MARYLAND, | ) | |
| COLLEGE PARK FOR AN EXEMPTION FROM | ) | Case No. _____ |
| THE REQUIREMENT TO OBTAIN | ) | |
| A CERTIFICATE OF PUBLIC CONVENIENCE | ) | |
| AND NECESSITY | ) | |

## CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 16 day of May, 2024, notification of the application in this proceeding was given by depositing the notification letter (Attachment A), addressed to each person listed in Attachment B with an overnight delivery service, delivery fee prepaid thereon.

Dannielle Glaros
Dannielle Glaros (May 16, 2024 15:04 EDT)

Dannielle Glaros
Assistant Vice President and Chief of Staff
Division of Administration
dglaros@umd.edu
301-405-8486

# ATTACHMENT A

# NOTIFICATION LETTER

DIVISION OF
ADMINISTRATION
OFFICE OF THE VICE PRESIDENT &
CHIEF ADMINISTRATIVE OFFICER

2119 Thomas V. Miller Jr. Administrative Building
College Park, Maryland 20742-5035
(301) 405-1105 TEL
www.adminvp.umd.edu

May 16, 2024

County Executive Angela D. Alsobrooks
Prince George's County
Wayne K. Curry Administration Building
1301 McCormick Drive
Suite 4000
Largo, MD 20774

Dear County Executive Alsobrooks:

The University of Maryland College Park is pleased to announce that the Board of Public Works recently approved our NextGen Energy Program. This program is a long-term initiative for modernizing our campus energy systems to secure high-quality, reliable, efficient, resilient, affordable, and sustainable campus energy services.

As Comptroller Lierman stated at the Board meeting, "The project will decrease energy disruptions, decrease wasted energy, and reduce greenhouse and gas emissions to meet the University sustainability goal to be carbon neutral by 2025 and fossil free by 2035." As part of the process for moving forward, please be advised that the University is requesting the Maryland Public Service Commission to grant an exemption from the Certificate of Public Convenience and Necessity ("CPCN") process for a project to renovate University's Central Heat and Power facility ("CHP") and reduce the CHP's electric generation capacity from 27 MW to 16.5 MW. This project is a major component of the NextGen Energy Program.

The University estimates that the CHP's capital improvements, combined with improvements to its condensate return system, will reduce the facility's carbon emissions by 23% and annual water consumption by 50% (38 million gallons). This is on top of the 54% reduction in greenhouse gas emissions already achieved (from 2005 to 2021) at the University despite significant campus growth. The improvements will also provide the University the flexibility to realize greater decreases in carbon emissions and deploy innovative technologies. Additionally, under the Inflation Reduction Act of 2022, the federal government will reimburse the University at least $69 million of the CHP's eligible construction costs, if construction begins by the end of this calendar year.

The MPSC granted the University a CPCN for the existing CHP in 2000. Since then, the law has changed to allow energy generating facilities like University's to be exempted from

the CPCN process because of its small generating capacity and on-site consumption. Obtaining this exemption will allow the University to apply for an air emissions permit for the renovated CHP from the Maryland Department of the Environment.

If you have any questions about the project to renovate the University's Central Heat and Power facility or wish to receive a copy of its application for exemption, please contact Dannielle Glaros, Assistant Vice President and Chief of Staff, Division of Administration, dglaros@umd.edu, 301-405-8486.

Very truly yours,

Carlo Colella
Vice President and Chief Administrative Officer

Cc: Darryll J. Pines, President, University of Maryland

# ATTACHMENT B

# LIST OF PERSONS NOTIFIED

# ATTACHMENT B

| First Name | Last Name | Title | District | Address 1 | Address 2 | Address 3 | City | State/Zip |
|---|---|---|---|---|---|---|---|---|
| Angela D. | Alsobrooks | County Executive | Prince George's County | Wayne K. Curry Administration Building | 1301 McCormick Drive | Suite 4000 | Largo | MD 20774 |
| Donna J. | Brown | Council Clerk | Prince George's County | Wayne K. Curry Administration Building | 1301 McCormick Drive | 2nd Floor | Largo | MD 20774 |
| S.M. Fazlul | Kabir | Mayor | City of College Park | 7401 Baltimore Avenue | Suite 201 | | College Park | MD 20740 |
| Janeen | Miller | City Clerk | City of College Park | 7401 Baltimore Avenue | Suite 201 | | College Park | MD 20740 |
| Robert S. | Croslin | Mayor | City of Hyattsville | 4310 Gallatin Street | | | Hyattsville | MD 20781 |
| Laura | Reams | City Clerk | City of Hyattsville | 4301 Gallatin Street | | | Hyattsville | MD 20781 |
| Alan K. | Thompson | Mayor | Town of Riverdale Park | 5800 Queensbury Road | | | Riverdale Park | MD 20737 |
| Jessica | Barnes | Director/Town Clerk | Town of Riverdale Park | 5800 Queensbury Road | | | Riverdale Park | MD 20737 |
| Joel | Biermann | Mayor | Town of University Park | 6724 Baltimore Ave. | | | University Park | MD 20782 |
| TC | Hegeman | Town Clerk | Town of University Park | 6724 Baltimore Ave. | | | University Park | MD 20782 |
| Jodie | Kulpa-Eddy | Mayor | Town of Berwyn Heights | 5700 Berwyn Road | | | Berwyn Heights | MD 20740 |
| Melanie | Friesen | Town Clerk | Town of Berywn Heights | 5700 Berwyn Road | | | Berwyn Heights | MD 20740 |
| Jim | Rosapepe | Senator | 21st Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 101 | Annapolis | MD 21401 |
| Ben | Barnes | Delegate | 21st Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 121 | Annapolis | MD 21401 |
| Mary | Lehman | Delegate | 21st Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 163 | Annapolis | MD 21401 |
| Joseline | Pena-Melnyk | Delegate | 21st Legislative District | Taylor House Office Bldg. | 6 Bladen St. | Room 241 | Annapolis | MD 21401 |
| Alonzo T. | Washington | Senator | 22nd Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 314 | Annapolis | MD 21401 |
| Anne M. | Healey | Delegate | 22nd Legislative District | Taylor House Office Bldg. | 6 Bladen St. | Room 361 | Annapolis | MD 21401 |
| Nicole | Williams, Esq. | Delegate | 22nd Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 207 | Annapolis | MD 21401 |
| Ashanti F. | Martinez | Delegate | 22nd Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 216 | Annapolis | MD 21401 |
| Ronald L. | Watson | Senator | 23rd Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 121 | Annapolis | MD 21401 |
| Adrian | Boafo | Delegate | 23rd Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 225 | Annapolis | MD 21401 |
| Marvin E. | Holmes, Jr. | Delegate | 23rd Legislative District | Taylor House Office Bldg. | 6 Bladen St. | Room 364 | Annapolis | MD 21401 |
| Kim | Taylor | Delegate | 23rd Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 203 | Annapolis | MD 21401 |
| Joanne C. | Benson | Senator | 24th Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 201 | Annapolis | MD 21401 |
| Tiffany T. | Alston | Delegate | 24th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 219 | Annapolis | MD 21401 |
| Andrea | Fletcher Harrison | Delegate | 24th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 207 | Annapolis | MD 21401 |
| Jazz M. | Lewis | Delegate | 24th Legislative District | Taylor House Office Bldg. | 6 Bladen St. | Room 151 | Annapolis | MD 21401 |
| Nick | Charles | Senator | 25th Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 202 | Annapolis | MD 21401 |
| Kent | Roberson | Delegate | 25th Legislative District | Lowe House Office Bldg | 6 Bladen St. | Room 219 | Annapolis | MD 21401 |
| Denise | Roberts | Delegate | 25th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 204 | Annapolis | MD 21401 |
| Karen R. | Toles | Delegate | 25th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 203 | Annapolis | MD 21401 |
| C. Anthony | Muse | Senator | 26th Legislative District | James Senate Office Bldg. | 11 Bladen St. | Room 220 | Annapolis | MD 21401 |
| Veronica L. | Turner | Delegate | 26th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 205 | Annapolis | MD 21401 |
| Kriselda | Valderrama | Delegate | 26th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 362 | Annapolis | MD 21401 |
| Jamila J. | Woods | Delegate | 26th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 206 | Annapolis | MD 21401 |
| Michael A. | Jackson | Senator | 27th Legislative District | Miller Senate Office Bldg. | 11 Bladen St. | 3 West Wing | Annapolis | MD 21401 |
| Kevin M. | Harris | Delegate | 27th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 225 | Annapolis | MD 21401 |
| Jeffrie E. | Long | Delegate | 27th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 209 | Annapolis | MD 21401 |
| Malcolm L. | Augustine | Senator | 47th Legislative District | Miller Senate Office Bldg. | 11 Bladen St. | Room 214 | Annapolis | MD 21401 |
| Diana M. | Fennell | Delegate | 47th Legislative District | Taylor House Office Bldg. | 6 Bladen St. | Room 410 | Annapolis | MD 21401 |
| R. Julian | Ivey | Delegate | 47th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 205 | Annapolis | MD 21401 |
| Deni L. | Taveras | Delegate | 47th Legislative District | Lowe House Office Bldg. | 6 Bladen St. | Room 206 | Annapolis | MD 21401 |

# Appendix J. Historical Emissions of Retiring Units

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

April 13, 2020

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Ms. Zelma Maldinado
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Ms. Maldinado:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of January 1, 2020 through March 31, 2020.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility January 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 452,849,000 | 0 | 473,657 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 21.50 | 0.00 | 2060.52 | 0.00 | | 229,730,000 | 0 | 240,286 | 0 | 0.0021 | 0.0000 | 0.0021 | 0.1329 | 0.0000 | 0.1329 | 0.0144 | 0.0000 | 0.0144 | 0.0062 | 0.0000 | 0.0062 | 0.0037 | 0.0000 | 0.0037 | 0.0037 | 0.0000 | 0.0037 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 96,644,000 | | 101,085 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 39,430,000 | | 41,242 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 744.00 | 0.00 | 72701.89 | 0.00 | | | | | | 0.0086 | 0.0000 | 0.0086 | 3.6950 | 0.0000 | 3.6950 | 0.0201 | 0.0000 | 0.0201 | 0.0214 | 0.0000 | 0.0214 | 0.3264 | 0.0000 | 0.3264 | 0.3264 | 0.0000 | 0.3264 |
| Boiler 4 | 743.70 | 0.00 | 67610.21 | 0.00 | | | | | | 0.0144 | 0.0000 | 0.0144 | 3.4639 | 0.0000 | 3.4639 | 0.0731 | 0.0000 | 0.0731 | 0.0199 | 0.0000 | 0.0199 | 0.2037 | 0.0000 | 0.2037 | 0.2037 | 0.0000 | 0.2037 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 32.15 | | 2.92 | | | | | | | 0.0061 | | | 0.0550 | | | 0.0573 | | | 0.0009 | | | 0.0162 | | | 0.0162 | | |
| Emissions Total | | | | | | | | | | 0.0312 | 0.0000 | 0.0251 | 7.3468 | 0.0000 | 7.2918 | 0.1649 | 0.0000 | 0.1076 | 0.0484 | 0.0000 | 0.0474 | 0.5500 | 0.0000 | 0.5338 | 0.5500 | 0.0000 | 0.5338 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.04 | 89.16 | 4.10 | 2.51 | 5.29 | 5.29 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility February 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 411,709,000 | 0 | 430,627 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 604.90 | 0.00 | 79092.65 | 0.00 | | 255,808,000 | 0 | 267,562 | 0 | 0.0791 | 0.0000 | 0.0791 | 5.1015 | 0.0000 | 5.1015 | 0.5536 | 0.0000 | 0.5536 | 0.2373 | 0.0000 | 0.2373 | 0.1424 | 0.0000 | 0.1424 | 0.1424 | 0.0000 | 0.1424 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 88,934,000 | | 93,021 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 476.10 | | 30290.71 | | | 52,230,000 | | 54,630 | | 0.0817 | | 0.0817 | 0.1969 | | 0.1969 | 0.1515 | | 0.1515 | 0.0089 | | 0.0089 | 0.0297 | | 0.0297 | 0.0297 | | 0.0297 |
| Boiler 2 | 641.30 | 0.00 | 46916.09 | 0.00 | | | | | | 0.0056 | 0.0000 | 0.0056 | 2.3845 | 0.0000 | 2.3845 | 0.0130 | 0.0000 | 0.0130 | 0.0138 | 0.0000 | 0.0138 | 0.2106 | 0.0000 | 0.2106 | 0.2106 | 0.0000 | 0.2106 |
| Boiler 4 | 189.20 | 0.00 | 1213.30 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0622 | 0.0000 | 0.0622 | 0.0013 | 0.0000 | 0.0013 | 0.0004 | 0.0000 | 0.0004 | 0.0037 | 0.0000 | 0.0037 | 0.0037 | 0.0000 | 0.0037 |
| Emerg. Gen. | | 3.50 | | 27.17 | 3.5 | | | | | | 0.0012 | 0.0012 | | 0.0435 | 0.0435 | | 0.0115 | 0.0115 | | 0.0000 | 0.0000 | | 0.0008 | 0.0008 | | 0.0009 | 0.0009 |
| Temporary Boile | 95.00 | | 8.63 | | | | | | | 0.0181 | | | 0.1625 | | | 0.1692 | | | 0.0027 | | | 0.0478 | | | 0.0478 | | |
| Emissions Total | | | | | | | | | | 0.1846 | 0.0012 | 0.1678 | 7.9074 | 0.0435 | 7.7885 | 0.8886 | 0.0115 | 0.7309 | 0.2631 | 0.0000 | 0.2604 | 0.4342 | 0.0008 | 0.3872 | 0.4342 | 0.0009 | 0.3873 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.07 | 87.58 | 4.37 | 2.46 | 5.24 | 5.24 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility March 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 330,649,000 | 0 | 345,842 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 741.90 | 0.00 | 89470.56 | 0.00 | | 277,778,000 | 0 | 290,542 | 0 | 0.0895 | 0.0000 | 0.0895 | 5.7709 | 0.0000 | 5.7709 | 0.6263 | 0.0000 | 0.6263 | 0.2684 | 0.0000 | 0.2684 | 0.1610 | 0.0000 | 0.1610 | 0.1610 | 0.0000 | 0.1610 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 69,564,000 | | 72,760 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 736.30 | | 46283.29 | | | 85,580,000 | | 89,512 | | 0.1248 | | 0.1248 | 0.3008 | | 0.3008 | 0.2314 | | 0.2314 | 0.0136 | | 0.0136 | 0.0454 | | 0.0454 | 0.0454 | | 0.0454 |
| Boiler 2 | 318.90 | 0.00 | 131.79 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0067 | 0.0000 | 0.0067 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0006 | 0.0000 | 0.0006 | 0.0006 | 0.0000 | 0.0006 |
| Boiler 4 | 161.40 | 0.00 | 425.70 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0218 | 0.0000 | 0.0218 | 0.0005 | 0.0000 | 0.0005 | 0.0001 | 0.0000 | 0.0001 | 0.0013 | 0.0000 | 0.0013 | 0.0013 | 0.0000 | 0.0013 |
| Emerg. Gen. | | 0.00 | | 0.00 | 3.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 550.00 | | 49.95 | | | | | | | 0.1045 | | | 0.9405 | | | 0.9797 | | | 0.0157 | | | 0.2766 | | | 0.2766 | | |
| Emissions Total | | | | | | | | | | 0.3189 | 0.0000 | 0.2144 | 7.0407 | 0.0000 | 6.1002 | 1.8379 | 0.0000 | 0.8582 | 0.2979 | 0.0000 | 0.2822 | 0.4850 | 0.0000 | 0.2083 | 0.4850 | 0.0000 | 0.2083 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.19 | 82.99 | 5.35 | 2.24 | 5.15 | 5.15 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

TEMP BOILER

| Date: | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 1832 ~~1838~~ | 1833/1837 | 0235 | |
| Recorded Test | 1845 | 1832 | 0253 | |
| O2 | 3.7% | 4.6% | 5.2% | |
| CO | 3ppm | 0ppm | 38ppm | |
| Eff | 83.8% | 78.8% | 99.7% | |
| CO2 | 9.7% | 9.2% | 8.9% | |
| T-Stk | 356°F | 514°F | 62°F | |
| T-Air | 87.3°F | 77°F | 49.4% | |
| EA | 18.9% | 25.1% | 29.5% | |
| CO (15) | 1ppm | 0ppm | 14ppm | |
| NO | 56ppm | 78ppm | 26ppm | |
| NO2 | 2ppm | 2ppm | 2ppm | |
| NOX | 59ppm | 79ppm | 28ppm | |
| SO2 | *** | *** | *** | |
| NO (15) | 19ppm | 28ppm | 10ppm | |
| NOX (15) | 20ppm | 29ppm | 10ppm | |
| SO2 (15 | *** | *** | *** | |
| K lbs/hour | 74KPPH | 63KPPH | 45KPPH | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:53:55 AM
Date: 01/07/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.2 % |
| CO | 38 ppm |
| Eff | 99.7 % |
| $CO_2$ | 8.9 % |
| T-Stk | 62 °F |
| T-Air | 49.4 °F |
| EA | 29.5 % |
| CO(15) | 14 ppm |
| NO | 26 ppm |
| $NO_2$ | 2 ppm |
| NOx | 28 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 10 ppm |
| $SO_2$(15) | **** ppm |

Comments: Temp Boiler

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:32:19 PM
Date: 01/06/20

#4 BOILER Fuel NGAS

| | |
|---|---|
| $O_2$ | 4.6 % |
| CO | 0 ppm |
| Eff | 78.8 % |
| $CO_2$ | 9.2 % |
| T-Stk | 514 °F |
| T-Air | 77.5 °F |
| EA | 25.1 % |
| CO(15) | 0 ppm |
| NO | 78 ppm |
| $NO_2$ | 2 ppm |
| NOx | 79 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 29 ppm |
| $SO_2$(15) | **** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:45:24 PM
Date: 01/06/20

#2 BOILER Fuel NGAS

| | |
|---|---|
| $O_2$ | 3.7 % |
| CO | 3 ppm |
| Eff | 83.8 % |
| $CO_2$ | 9.7 % |
| T-Stk | 356 °F |
| T-Air | 87.3 °F |
| EA | 18.9 % |
| CO(15) | 1 ppm |
| NO | 56 ppm |
| $NO_2$ | 2 ppm |
| NOx | 59 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1636 | 1617 | | |
| Recorded Test | 1652 | 1635 | | |
| O2 | 4.5% | 4.2% | | |
| CO | 4ppm | 1ppm | | |
| Eff | 82.9% | 79.8% | | |
| CO2 | 9.2% | 9.4% | | |
| T-Stk | 388°F | 507°F | | |
| T-Air | 100.7°F | 99.6°F | | |
| EA | 24.8% | 22.3% | | |
| CO (15) | 2ppm | 0ppm | | |
| NO | 56ppm | 77ppm | | |
| NO2 | 3ppm | 0ppm | | |
| NOX | 59ppm | 77ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 20ppm | 27ppm | | |
| NOX (15) | 21ppm | 27ppm | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 56KPPH | 58KPPH | | |

**Signature:** _____

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:35:39 PM
Date: 01/13/20

#4 BOILER

Fuel NGAS

| | |
|---|---|
| $O_2$ | 4.2 % |
| CO | 1 ppm |
| Eff | 79.8 % |
| $CO_2$ | 9.4 % |
| T-Stk | 507 °F |
| T-Air | 99.6 °F |
| EA | 22.3 % |
| CO(15) | 0 ppm |
| NO | 77 ppm |
| $NO_2$ | 0 ppm |
| NOx | 77 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | **** ppm |

Comments: 58KPPH

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:52:27 PM
Date: 01/13/20

#2 BOILER

Fuel NGAS

| | |
|---|---|
| $O_2$ | 4.5 % |
| CO | 4 ppm |
| Eff | 82.9 % |
| $CO_2$ | 9.2 % |
| T-Stk | 388 °F |
| T-Air | 100.7 °F |
| EA | 24.8 % |
| CO(15) | 2 ppm |
| NO | 58 ppm |
| $NO_2$ | 3 ppm |
| NOx | 59 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | **** ppm |

Comments:

56KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| St[illegible] Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**S[illegible]ature:** _____

TEMP BOILER

| Date: | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 1254 | 1235 | 1320 | |
| Recorded Test | 1311 | 1252 | 1337 | |
| O2 | 3.5% | 14.7% | 12.0% | |
| CO | 5ppm | 1ppm | 14ppm | |
| Eff | 82.5% | 61.5% | 99.7% | |
| CO2 | 9.8% | 3.5% | 5.0% | |
| T-Stk | 405°F | 553°F | 490°F | |
| T-Air | 85.2°F | 88.5°F | 60.4°F | |
| EA | 17.7% | 212.8% | 121.1% | |
| CO (15) | 2ppm | 1ppm | 10ppm | |
| NO | 63ppm | 32ppm | 13ppm | |
| NO2 | 2ppm | 0ppm | 2ppm | |
| NOX | 65ppm | 32ppm | 15ppm | |
| SO2 | *** | *** | *** | |
| NO (15) | 21ppm | 3ppm | 8ppm | |
| NOX (15) | 22ppm | 3ppm | 10ppm | |
| SO2 (15 | *** | *** | *** | |
| K[illegible]/hour | 73KPPH | 69KPPH | 41KPPH | |

**Signature:** _____

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 01:37:24 PM
Date: 01/20/20

TEMP
Fuel NGAS Boiler

| | |
|---|---|
| $O_2$ | 12.0 % |
| CO | 14 ppm |
| Eff | 99.7 % |
| $CO_2$ | 5.0 % |
| T-Stk | 49 °F |
| T-Air | 60.4 °F |
| EA | 121.1 % |
| CO(15) | 10 ppm |
| NO | 13 ppm |
| $NO_2$ | 2 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 10 ppm |
| $SO_2$(15) | *** ppm |

Comments:
41KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:52:49 PM
Date: 01/20/20

#4
Fuel NGAS Boiler

| | |
|---|---|
| $O_2$ | 14.7 % |
| CO | 1 ppm |
| Eff | 61.5 % |
| $CO_2$ | 3.5 % |
| T-Stk | 553 °F |
| T-Air | 88.5 °F |
| EA | 212.8 % |
| CO(15) | 1 ppm |
| NO | 32 ppm |
| $NO_2$ | 0 ppm |
| NOx | 32 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 31 ppm |
| $SO_2$(15) | *** ppm |

Comments:
69KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 01:11:32 PM
Date: 01/20/20

#2
Boiler
Fuel NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 5 ppm |
| Eff | 82.5 % |
| $CO_2$ | 9.8 % |
| T-Stk | 405 °F |
| T-Air | 85.2 °F |
| EA | 17.7 % |
| CO(15) | 2 ppm |
| NO | 63 ppm |
| $NO_2$ | 2 ppm |
| NOx | 65 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Comments:
73KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

TEMP

| Date: | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 0857 | 0952 | 1013 | |
| Recorded Test | 0948 | 1007 | 1028 | |
| O2 | 3.4 % | 4.2 % | 7.1 % | |
| CO | 9 PPM | 3 PPM | 4 PPM | |
| Eff | 83.2 % | 77.6 % | 100.0 % | |
| CO2 | 9.9 % | 9.4 % | 7.8 % | |
| T-Stk | 375 °F | 586 °F | 62 °F | |
| T-Air | 81.6 °F | 98.4 °F | 72.2 °F | |
| EA | 17.2 % | 22.7 % | 46.1 % | |
| CO (15) | 3 PPM | 1 PPM | 2 PPM | |
| NO | 60 PPM | 81 PPM | 28 PPM | |
| NO2 | 0 PPM | 0 PPM | 0 PPM | |
| NOX | 60 PPM | 81 PPM | 28 PPM | |
| SO2 | *** PPM | *** PPM | *** PPM | |
| NO (15) | 20 PPM | 29 PPM | 12 PPM | |
| NOX (15) | 20 PPM | 29 PPM | 12 PPM | |
| SO2 (15 | *** PPM | *** PPM | *** | |
| K lbs/hour | 65 | 62 | 24 | |

**Signature:** Kenneth Sullivan

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:28:44 AM
Date: 01/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.1 % |
| CO | 4 ppm |
| Eff | 100.0 % |
| $CO_2$ | 7.8 % |
| T-Stk | 62 °F |
| T-Air | 72.2 °F |
| EA | 46.1 % |
| CO(15) | 2 ppm |
| NO | 28 ppm |
| $NO_2$ | 0 ppm |
| NOx | 28 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 12 ppm |
| $SO_2$(15) | **** ppm |

Comments:
TEMP 24

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:07:26 AM
Date: 01/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.2 % |
| CO | 3 ppm |
| Eff | 77.6 % |
| $CO_2$ | 9.4 % |
| T-Stk | 586 °F |
| T-Air | 98.4 °F |
| EA | 22.7 % |
| CO(15) | 1 ppm |
| NO | 81 ppm |
| $NO_2$ | 0 ppm |
| NOx | 81 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| $SO_2$(15) | **** ppm |

Comments:
BLR #4
Klbs-62

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:48:50 AM
Date: 01/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 9 ppm |
| Eff | 83.2 % |
| $CO_2$ | 9.9 % |
| T-Stk | 375 °F |
| T-Air | 81.6 °F |
| EA | 17.2 % |
| CO(15) | 3 ppm |
| NO | 60 ppm |
| $NO_2$ | 0 ppm |
| NOx | 60 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Comments:
BLR #2
Klbs-65

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 02/03/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1554 |
| Recorded Test | | | | 1559 |
| O2 | | | | 15.9 % |
| CO | | | | 2 PPM |
| Eff | | | | 70.9 % |
| CO2 | | | | 2.8 % |
| T-Stk | | | | 352° F |
| T-Air | | | | 91° F |
| EA | | | | 250.0 % |
| CO (15) | | | | 2 PPM |
| NO | | | | 17 PPM |
| NO2 | | | | 1 PPM |
| NOX | | | | 18 PPM |
| SO2 | | | | *** PPM |
| NO (15) | | | | 20 PPM |
| NOX (15) | | | | 22 PPM |
| SO2 (15 | | | | *** PPM |
| Mega Watts | | | | 93 |
| KSCF/hour | | | | |

**Signature:** David J. Shaw

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1330 | 2307 | | |
| Recorded Test | 1348 | 2323 | | |
| O2 | 3.9 % | 7.0 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 80.8 % | 81.4 % | | |
| CO2 | 9.6 % | 7.9 % | | |
| T-Stk | 337° F | 408° F | | |
| T-Air | 108.90 F | 104.70 F | | |
| EA | 20.1 % | 44.5 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 54 PPM | 57 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 54 PPM | 57 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 19 PPM | 24 PPM | | |
| NOX (15) | 19 PPM | 24 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 48 | 48 | | |

**Signature:** David J. Shaw

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:23:24 PM
Date: 02/03/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.0 % |
| CO | 0 ppm |
| Eff | 81.4 % |
| $CO_2$ | 7.9 % |
| T-Stk | 408 °F |
| T-Air | 104.7 °F |
| EA | 44.5 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 0 ppm |
| NOx | 57 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 24 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 24 ppm |
| $SO_2$ (15) | **** ppm |

Comments:
Steam flow-18K
#4 BLR

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:48:07 PM
Date: 02/03/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.9 % |
| CO | 0 ppm |
| Eff | 84.8 % |
| $CO_2$ | 9.6 % |
| T-Stk | 337 °F |
| T-Air | 108.9 °F |
| EA | 20.1 % |
| CO(15) | 0 ppm |
| NO | 54 ppm |
| $NO_2$ | 0 ppm |
| NOx | 54 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 19 ppm |
| $SO_2$ (15) | **** ppm |

Comments:
STM Flow 48K
#2 BLR

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:59:00 PM
Date: 02/03/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 2 ppm |
| Eff | 70.9 % |
| $CO_2$ | 2.8 % |
| T-Stk | 352 °F |
| T-Air | 91.1 °F |
| EA | 250.0 % |
| CO(15) | 2 ppm |
| NO | 17 ppm |
| $NO_2$ | 1 ppm |
| NOx | 18 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | **** ppm |

Comments:
GT2
MW = 9.31
O.A.T. = 64°F.

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 2/10/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1340 | | |
| Recorded Test | | 1347 | | |
| O2 | | 14.6 % | | |
| CO | | 4 PPM | | |
| Eff | | 81.5 % | | |
| CO2 | | 3.5 % | | |
| T-Stk | | 218 °F | | |
| T-Air | | 67.3 °F | | |
| EA | | 207.4 % | | |
| CO (15) | | 4 PPM | | |
| NO | | 20 PPM | | |
| NO2 | | 4 PPM | | |
| NOX | | 24 PPM | | |
| SO2 | | XXX PPM | | |
| NO (15) | | 19 PPM | | |
| NOX (15) | | 23 PPM | | |
| SO2 (15 | | XXX | | |
| Mega Watts | | 10.1 | | |
| KSCF/hour | | 50 | | |

**Signature:**

| Date: 2/10/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1355 | | | |
| Recorded Test | 1412 | | | |
| O2 | 9.3 % | | | |
| CO | 1 PPM | | | |
| Eff | 81.2 % | | | |
| CO2 | 6.6 % | | | |
| T-Stk | 339 °F | | | |
| T-Air | 71.8 °F | | | |
| EA | 78.9 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 34 PPM | | | |
| NO2 | 3 PPM | | | |
| NOX | 37 PPM | | | |
| SO2 | XXX | | | |
| NO (15) | 17 PPM | | | |
| NOX (15) | 19 PPM | | | |
| SO2 (15 | XXX | | | |
| K lbs/hour | 1178 ACFM | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

#2
Burner
ACFM
1136

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:12:21 PM
Date: 02/10/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.3 % |
| CO | 1 ppm |
| Eff | 81.2 % |
| $CO_2$ | 6.6 % |
| T-Stk | 339 °F |
| T-Air | 71.8 °F |
| EA | 70.9 % |
| CO(15) | 0 ppm |
| NO | 34 ppm |
| $NO_2$ | 3 ppm |
| NOx | 37 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:

Duct
Duct

BACHARACH
MW 10.1

BACHARACH, INC.
PCA 3
SN: TP1006
KSCFH 60

Time: 01:47:44 PM
Date: 02/10/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 4 ppm |
| Eff | 81.5 % |
| $CO_2$ | 3.5 % |
| T-Stk | 218 °F |
| T-Air | 67.3 °F |
| EA | 207.4 % |
| CO(15) | 4 ppm |
| NO | 20 ppm |
| $NO_2$ | 4 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PA

| Date: 2/17/2020 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | N/A | 1038 |
| Recorded Test | | 1043 |
| O2 | | 13.7 % |
| CO | | 9 PPM |
| Eff | | 79.9 % |
| CO2 | | 4.1 % |
| T-Stk | | 266 °F |
| T-Air | | 66.7 °F |
| EA | | 170.2 % |
| CO (15) | | 8 PPM |
| NO | | 25 PPM |
| NO2 | | 6 PPM |
| NOX | | 31 PPM |
| SO2 | | *** PPM |
| NO (15) | | 21 PPM |
| NOX (15) | | 26 PPM |
| SO2 (15 | | *** PPM |
| Mega Watts | | 9.8 |
| KSCF/hour | | 70 |

**Signature:** Kenneth W

| Date: 2/17/2020 | BLR 2 | BLR 4 | BL |
|---|---|---|---|
| Start Test | 1040 | N/A | N |
| Recorded Test | 1055 | | |
| O2 | 8.7 % | | |
| CO | 0 PPM | | |
| Eff | 81.6 % | | |
| CO2 | 6.9 % | | |
| T-Stk | 335 °F | | |
| T-Air | 71.7 °F | | |
| EA | 63.9 % | | |
| CO (15) | 0 PPM | | |
| NO | 47 PPM | | |
| NO2 | 2 PPM | | |
| NOX | 48 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 23 PPM | | |
| NOX (15) | 23 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 41 | | |

**Signature:** Kenneth W

GT #2 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:43:55 AM
Date: 02/17/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 9 ppm |
| Eff | 79.9 % |
| $CO_2$ | 4.1 % |
| T-Stk | 266 °F |
| T-Air | 66.7 °F |
| EA | 170.2 % |
| CO (15) | 8 ppm |
| NO | 25 ppm |
| $NO_2$ | 6 ppm |
| NOx | 31 ppm |
| $SO_2$ | *** ppm |
| NO (15) | 21 ppm |
| $NO_2$ (15) | 5 ppm |
| NOx (15) | 26 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
MW = 9.8
KSCF = 70

BLR2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:55:00 AM
Date: 02/17/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.7 % |
| CO | 0 ppm |
| Eff | 81.6 % |
| $CO_2$ | 6.9 % |
| T-Stk | 335 °F |
| T-Air | 71.7 °F |
| EA | 63.9 % |
| CO (15) | 0 ppm |
| NO | 47 ppm |
| $NO_2$ | 2 ppm |
| NOx | 48 ppm |
| $SO_2$ | *** ppm |
| NO (15) | 23 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx (15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
KLBS = 41

D THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

IS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1135 | | |
| Recorded Test | | 1143 | | |
| O2 | | 14.9% | | |
| CO | | 4ppm | | |
| Eff | | 77.4% | | |
| CO2 | | 3.4% | | |
| T-Stk | | 274°F | | |
| T-Air | | 67.2°F | | |
| EA | | 221.5% | | |
| CO (15) | | 4ppm | | |
| NO | | 22ppm | | |
| NO2 | | 4ppm | | |
| NOX | | 25ppm | | |
| SO2 | | *** | | |
| NO (15) | | 21ppm | | |
| NOX (15) | | 25ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 9.56 MW | | |
| KSCF/hour | | 38 | | |

**Signature:**

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1146 | ~~SEE~~ |
| Recorded Test | 1204 | |
| O2 | 9.2% | |
| CO | 0ppm | |
| Eff | 82.0% | |
| CO2 | 6.6% | |
| T-Stk | 330°F | |
| T-Air | 84.3°F | |
| EA | 69.9% | |
| CO (15) | 0ppm | |
| NO | 43ppm | |
| NO2 | 1ppm | |
| NOX | 44ppm | |
| SO2 | *** | |
| NO (15) | 22ppm | |
| NOX (15) | 22ppm | |
| SO2 (15 | *** | |
| K lbs/hour | 37KPPH | |

**Signature:**

.....
.....
.....

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:43:37 AM
Date: 02/24/20

GT2 W/DB

Fuel NGAS

| | |
|---|---|
| $O_2$: | 14.9 % |
| CO | 4 ppm |
| Eff | 77.4 % |
| $CO_2$ | 3.4 % |
| T-Stk | 274 °F |
| T-Air | 67.2 °F |
| EA | 221.5 % |
| CO(15) | 4 ppm |
| NO | 22 ppm |
| $NO_2$ | 4 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 25 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
9.56 MW
38 KSCFH

.....
.....
.....

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:04:37 PM
Date: 02/24/20

#2 BOILER

Fuel NGAS

| | |
|---|---|
| $O_2$: | 9.2 % |
| CO | 0 ppm |
| Eff | 82.0 % |
| $CO_2$ | 6.6 % |
| T-Stk | 330 °F |
| T-Air | 84.3 °F |
| EA | 69.9 % |
| CO(15) | 0 ppm |
| NO | 43 ppm |
| $NO_2$ | 1 ppm |
| NOx | 44 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
37KPPH

N PRINT TEST RESULTS

EN PRINT TEST RESULTS

ET

## EMISSION TEST COLLEGE I

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 1120 |
| Recorded Test | | 1126 |
| O2 | | 12.7% |
| CO | | 6ppm |
| Eff | | 77.2% |
| CO2 | | 4.7% |
| T-Stk | | 339°F |
| T-Air | | 58.2°F |
| EA | | 136.7% |
| CO (15) | | 4ppm |
| NO | | 29ppm |
| NO2 | | 4ppm |
| NOX | | 34ppm |
| SO2 | | *** |
| NO (15) | | 21ppm |
| NOX (15) | | 24ppm |
| SO2 (15 | | *** |
| Mega Watts | | 9.44MW |
| KSCF/hour | | 77KSCFH |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:46:05 AM
Date: 03/02/20

#2 BOILER

Fuel NGAS

| | |
|---|---|
| $O_2$ | 7.0 % |
| CO | 1 ppm |
| Eff | 84.5 % |
| $CO_2$ | 7.8 % |
| T-Stk | 281 °F |
| T-Air | 76.9 °F |
| EA | 45.2 % |
| CO(15) | 0 ppm |
| NO | 38 ppm |
| $NO_2$ | 0 ppm |
| NOx | 38 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 16 ppm |
| $SO_2$ (15) | *** ppm |

Comments: 37KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:26:41 AM
Date: 03/02/20

#2 GT

Fuel NGAS

| | |
|---|---|
| $O_2$ | 12.7 % |
| CO | 6 ppm |
| Eff | 77.2 % |
| $CO_2$ | 4.7 % |
| T-Stk | 339 °F |
| T-Air | 58.2 °F |
| EA | 136.7 % |
| CO(15) | 4 ppm |
| NO | 29 ppm |
| $NO_2$ | 4 ppm |
| NOx | 34 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 24 ppm |
| $SO_2$ (15) | *** ppm |

Comments: 9.44 MW
77KSCFH

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1130 | |
| Recorded Test | 1146 | |
| O2 | 7.0% | |
| CO | 1ppm | |
| Eff | 84.5% | |
| CO2 | 7.8% | |
| T-Stk | 281°F | |
| T-Air | 76.9°F | |
| EA | 45.2% | |
| CO (15) | 0ppm | |
| NO | 38ppm | |
| NO2 | 0ppm | |
| NOX | 38ppm | |
| SO2 | *** | |
| NO (15) | 16ppm | |
| NOX (15) | 16ppm | |
| SO2 (15 | *** | |
| K lbs/hour | 37KPPH | |

**Signature:**

SHEET

IEN PRINT TEST RESULTS

N PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/9/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1000 | | |
| Recorded Test | | 1004 | | |
| O2 | | 13.3% | | |
| CO | | 6 ppm | | |
| Eff | | 80.1% | | |
| CO2 | | 4.3% | | |
| T-Stk | | 273°F | | |
| T-Air | | 68.3°F | | |
| EA | | 156.3% | | |
| CO (15) | | 15 ppm | | |
| NO | | 25.8 ppm | | |
| NO2 | | 1.7 ppm | | |
| NOX | | 27.5 ppm | | |
| SO2 | | | | |
| NO (15) | | ~~61 ppm~~ 2 | | |
| NOX (15) | | ~~65 ppm~~ 2 21.35 | | |
| SO2 (15 | | | | |
| Mega Watts | | 9.72 | | |
| KSCF/hour | | 68 | | |

**Signature:** [signature]

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:04:31 AM
Date: 03/09/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.3 % |
| CO | 6 ppm |
| Eff | 80.1 % |
| $CO_2$ | 4.3 % |
| T-Stk | 273 °F |
| T-Air | 68.3 °F |
| EA | 156.3 % |
| CO(3) | 15 ppm |
| NO | 25.8 ppm |
| $NO_2$ | 1.7 ppm |
| NOx | 27.5 ppm |
| NO(3) | 81 ppm |
| $NO_2$ (3) | 4 ppm |
| NOx(3) | 65 ppm |
| Flow | 0.52 LPM |

Comments:

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

TO THIS SHEET

UTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

NOx computed incorrectly @ 3 vice 15

NOx(15) = 21.35

27.5(5.9)/7.6 = 21.35

[signature]

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/13/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1043 | | |
| Recorded Test | | 1048 | | |
| O2 | | 13.2 | | |
| CO | | 7 | | |
| Eff | | 80.9 | | |
| CO2 | | 4.4 | | |
| T-Stk | | 262 | | |
| T-Air | | 68.6 | | |
| EA | | 152 | | |
| CO (15) | | 6 | | |
| NO | | 22 | | |
| NO2 | | 5 | | |
| NOX | | 27 | | |
| SO2 | | *** | | |
| NO (15) | | 17 | | |
| NOX (15) | | 4 | | |
| SO2 (15 | | 21 | | |
| Mega Watts | | 9.6 | | |
| KSCF/hour | | 94 | | |

**Signature:** Philip Riggs

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:48:35 AM
Date: 03/13/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.2 % |
| CO | 7 ppm |
| Eff | 80.9 % |
| $CO_2$ | 4.4 % |
| T-STK | 262 °F |
| T-AIR | 68.6 °F |
| EA | 152.0 % |
| CO(15) | 6 ppm |
| NO | 22 ppm |
| $NO_2$ | 5 ppm |
| NOx | 27 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | **** ppm |

Draft Reading
-0.06 inwc

Comments:
#2 GT W/ DB
9.6 MW

| Date: | BLR 2 | BLR 4 | BLR 2 | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

JLTS

TS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 03/16/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0909 | | |
| Recorded Test | | 0915 | | |
| O2 | | 12.6 % | | |
| CO | | 10ppm | | |
| Eff | | 81.1% | | |
| CO2 | | 4.7 % | | |
| T-Stk | | 266°F | | |
| T-Air | | 64.2°F | | |
| EA | | 135.8 % | | |
| CO (15) | | 7ppm | | |
| NO | | 26ppm | | |
| NO2 | | 6 ppm | | |
| NOX | | 32ppm | | |
| SO2 | | *** | | |
| NO (15) | | 19ppm | | |
| NOX (15) | | 23ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 10.1 MW | | |
| KSCF/hour | | 53 KSCFH | | |

**Signature:**

| Date: 03/16/20 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 0925 |
| Recorded Test | | 0948 |
| O2 | | 9.2 % |
| CO | | 1ppm |
| Eff | | 80.1% |
| CO2 | | 6.6% |
| T-Stk | | 389°F |
| T-Air | | 91.1°F |
| EA | | 69.7% |
| CO (15) | | 0ppm |
| NO | | 67ppm |
| NO2 | | 1ppm |
| NOX | | 68ppm |
| SO2 | | *** |
| NO (15) | | 34ppm |
| NOX (15) | | 34ppm |
| SO2 (15 | | *** |
| K lbs/hour | | 24 KPPH |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:48:15 AM
Date: 03/16/20

BOILER #4

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.2 % |
| CO | 1 ppm |
| Eff | 80.1 % |
| $CO_2$ | 6.6 % |
| T-STK | 389 °F |
| T-AIR | 91.1 °F |
| EA | 69.7 % |
| CO(15) | 0 ppm |
| NO | 67 ppm |
| $NO_2$ | 1 ppm |
| NOx | 68 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 34 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 34 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.51 inwc

Comments:

24 KPPH

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:15:13 AM
Date: 03/16/20

GT #2

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 12.6 % |
| CO | 10 ppm |
| Eff | 81.1 % |
| $CO_2$ | 4.7 % |
| T-STK | 266 °F |
| T-AIR | 64.2 °F |
| EA | 135.8 % |
| CO(15) | 7 ppm |
| NO | 26 ppm |
| $NO_2$ | 6 ppm |
| NOx | 32 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

10.1 MW
53 KSCFH Draft Reading
-0.11 inwc

Comments:

PRINT TEST RESULTS

PRINT TEST RESULTS

## EMISSION TEST COLLEGE

| Date: 03/23/2020 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 1158 |
| Recorded Test | | 1203 |
| O2 | | 12.9% |
| CO | | 8 PPM |
| Eff | | 80.7% |
| CO2 | | 4.5% |
| T-Stk | | 270 °F |
| T-Air | | 66.4 °F |
| EA | | 143.2 % |
| CO (15) | | 6 PPM |
| NO | | 26 PPM |
| NO2 | | 4 PPM |
| NOX | | 30 PPM |
| SO2 | | *** PPM |
| NO (15) | | 19 PPM |
| NOX (15) | | 22 PPM |
| SO2 (15 | | *** PPM |
| Mega Watts | | 10 |
| KSCF/hour | | 67 |

**Signature:** Kenneth Wilson

GT 2 DB

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:03:44 PM
Date: 03/23/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 12.9 % |
| CO | 8 ppm |
| Eff | 80.7 % |
| $CO_2$ | 4.5 % |
| T-STK | 270 °F |
| T-AIR | 66.4 °F |
| EA | 143.2 % |
| CO(15) | 6 ppm |
| NO | 26 ppm |
| $NO_2$ | 4 ppm |
| NOx | 30 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-0.05 inwc

Comments:
MW – 10
KSCF/hr – 67

| Date: 03/23/2020 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1027 | |
| Recorded Test | 1042 | |
| O2 | 4.7% | |
| CO | 1 PPM | |
| Eff | 84.0% | |
| CO2 | 9.1% | |
| T-Stk | 321 °F | |
| T-Air | 72.5 °F | |
| EA | 25.8 % | |
| CO (15) | 0 PPM | |
| NO | 57 PPM | |
| NO2 | 1 PPM | |
| NOX | 58 PPM | |
| SO2 | *** PPM | |
| NO (15) | 21 PPM | |
| NOX (15) | 21 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | 25 | |

**Signature:** Kenneth Wilson

BLR 2

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:42:50 AM
Date: 03/23/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.7 % |
| CO | 1 ppm |
| Eff | 84.0 % |
| $CO_2$ | 9.1 % |
| T-STK | 321 °F |
| T-AIR | 72.5 °F |
| EA | 25.8 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 1 ppm |
| NOx | 58 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-0.64 inwc

Comments:
K lbs/hr – 25

PRINT TEST RESULTS

PRINT TEST RESULTS

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

July 24, 2020

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Ms. Zelma Maldinado
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Ms. Maldinado:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of April 1, 2020 through June 30, 2020.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility April 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC | | | NOx | | | CO | | | $SO_2$ | | | $PM_{10}$ | | | PM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | scf/12-months | gal/12-months | mmbtu/12-months | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | |
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 244,659,000 | 0 | 255,901 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 718.50 | 0.00 | 89913.00 | 0.00 | | 289,261,000 | 0 | 302,553 | 0 | 0.0899 | 0.0000 | 0.0899 | 5.7994 | 0.0000 | 5.7994 | 0.6294 | 0.0000 | 0.6294 | 0.2697 | 0.0000 | 0.2697 | 0.1618 | 0.0000 | 0.1618 | 0.1618 | 0.0000 | 0.1618 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 61,794,000 | | 64,633 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 713.80 | | 41430.08 | | | 121,740,000 | | 127,334 | | 0.1117 | | 0.1117 | 0.2693 | | 0.2693 | 0.2072 | | 0.2072 | 0.0122 | | 0.0122 | 0.0407 | | 0.0407 | 0.0407 | | 0.0407 |
| Boiler 2 | 82.00 | 0.00 | 511.47 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0260 | 0.0000 | 0.0260 | 0.0001 | 0.0000 | 0.0001 | 0.0002 | 0.0000 | 0.0002 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 0.0000 | 0.0023 |
| Boiler 4 | 164.50 | 0.00 | 759.36 | 0.00 | | | | | | 0.0002 | 0.0000 | 0.0002 | 0.0389 | 0.0000 | 0.0389 | 0.0008 | 0.0000 | 0.0008 | 0.0002 | 0.0000 | 0.0002 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 0.0000 | 0.0023 |
| Emerg. Gen. | | 0.00 | | 0.00 | 3.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 57.20 | 0.00 | 5.20 | 0.00 | | | | | | 0.0109 | 0.0000 | 0.0109 | 0.0978 | 0.0000 | 0.0978 | 0.1019 | 0.0000 | 0.1019 | 0.0016 | 0.0000 | 0.0016 | 0.0288 | 0.0000 | 0.0288 | 0.0288 | 0.0000 | 0.0288 |
| Emissions Total | | | | | | | | | | 0.2127 | 0.0000 | 0.2127 | 6.2314 | 0.0000 | 6.2314 | 0.9394 | 0.0000 | 0.9394 | 0.2839 | 0.0000 | 0.2839 | 0.2359 | 0.0000 | 0.2359 | 0.2359 | 0.0000 | 0.2359 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.24 | 78.43 | 5.51 | 2.01 | 4.98 | 4.98 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility May 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 182,819,000 | 0 | 191,220 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 658.50 | 0.00 | 80599.86 | 0.00 | | 326,150,000 | 0 | 341,137 | 0 | 0.0806 | 0.0000 | 0.0806 | 5.1987 | 0.0000 | 5.1987 | 0.5642 | 0.0000 | 0.5642 | 0.2418 | 0.0000 | 0.2418 | 0.1451 | 0.0000 | 0.1451 | 0.1451 | 0.0000 | 0.1451 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 49,634,000 | | 51,915 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 627.40 | | 31191.27 | | | 142,641,000 | | 149,195 | | 0.0841 | | 0.0841 | 0.2027 | | 0.2027 | 0.1560 | | 0.1560 | 0.0092 | | 0.0092 | 0.0306 | | 0.0306 | 0.0306 | | 0.0306 |
| Boiler 2 | 166.90 | 0.00 | 4691.09 | 0.00 | | | | | | 0.0006 | 0.0000 | 0.0006 | 0.2384 | 0.0000 | 0.2384 | 0.0013 | 0.0000 | 0.0013 | 0.0014 | 0.0000 | 0.0014 | 0.0211 | 0.0000 | 0.0211 | 0.0211 | 0.0000 | 0.0211 |
| Boiler 4 | 146.50 | 0.00 | 4065.61 | 0.00 | | | | | | 0.0009 | 0.0000 | 0.0009 | 0.2083 | 0.0000 | 0.2083 | 0.0044 | 0.0000 | 0.0044 | 0.0012 | 0.0000 | 0.0012 | 0.0122 | 0.0000 | 0.0122 | 0.0122 | 0.0000 | 0.0122 |
| Emerg. Gen. | | 0.00 | | 0.00 | 3.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 30.20 | 0.00 | 2.74 | 0.00 | | | | | | 0.0057 | 0.0000 | 0.0057 | 0.0516 | 0.0000 | 0.0516 | 0.0538 | 0.0000 | 0.0538 | 0.0009 | 0.0000 | 0.0009 | 0.0152 | 0.0000 | 0.0152 | 0.0152 | 0.0000 | 0.0152 |
| Emissions Total | | | | | | | | | | 0.1719 | 0.0000 | 0.1719 | 5.8998 | 0.0000 | 5.8998 | 0.7796 | 0.0000 | 0.7796 | 0.2544 | 0.0000 | 0.2544 | 0.2242 | 0.0000 | 0.2242 | 0.2242 | 0.0000 | 0.2242 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.27 | 76.24 | 5.78 | 1.93 | 4.84 | 4.84 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility June 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 126,099,000 | 0 | 131,893 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 257.80 | 0.00 | 32183.88 | 0.00 | | 356,920,000 | 0 | 373,320 | 0 | 0.0322 | 0.0000 | 0.0322 | 2.0759 | 0.0000 | 2.0759 | 0.2253 | 0.0000 | 0.2253 | 0.0966 | 0.0000 | 0.0966 | 0.0579 | 0.0000 | 0.0579 | 0.0579 | 0.0000 | 0.0579 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 36,824,000 | | 38,516 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 78.70 | | 2604.42 | | | 145,131,000 | | 151,800 | | 0.0070 | | 0.0070 | 0.0169 | | 0.0169 | 0.0130 | | 0.0130 | 0.0008 | | 0.0008 | 0.0026 | | 0.0026 | 0.0026 | | 0.0026 |
| Boiler 2 | 645.50 | 0.00 | 22755.69 | 0.00 | | | | | | 0.0027 | 0.0000 | 0.0027 | 1.1565 | 0.0000 | 1.1565 | 0.0063 | 0.0000 | 0.0063 | 0.0067 | 0.0000 | 0.0067 | 0.1022 | 0.0000 | 0.1022 | 0.1022 | 0.0000 | 0.1022 |
| Boiler 4 | 718.20 | 0.00 | 15327.35 | 0.00 | | | | | | 0.0033 | 0.0000 | 0.0033 | 0.7853 | 0.0000 | 0.7853 | 0.0166 | 0.0000 | 0.0166 | 0.0045 | 0.0000 | 0.0045 | 0.0462 | 0.0000 | 0.0462 | 0.0462 | 0.0000 | 0.0462 |
| Emerg. Gen. | | 48.20 | | 374.18 | 51.7 | | | | | | 0.0168 | 0.0168 | | 0.5987 | 0.5987 | | 0.1590 | 0.1590 | | 0.0003 | 0.0003 | | 0.0107 | 0.0107 | | 0.0130 | 0.0130 |
| Temporary Boile | 65.00 | 0.00 | 5.90 | 0.00 | | | | | | 0.0123 | 0.0000 | 0.0123 | 0.1111 | 0.0000 | 0.1111 | 0.1158 | 0.0000 | 0.1158 | 0.0019 | 0.0000 | 0.0019 | 0.0327 | 0.0000 | 0.0327 | 0.0327 | 0.0000 | 0.0327 |
| Emissions Total | | | | | | | | | | 0.0575 | 0.0168 | 0.0744 | 4.1457 | 0.5987 | 4.7444 | 0.3770 | 0.1590 | 0.5360 | 0.1104 | 0.0003 | 0.1107 | 0.2415 | 0.0107 | 0.2522 | 0.2415 | 0.0130 | 0.2522 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.27 | 75.20 | 6.12 | 1.85 | 4.78 | 4.78 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 04/06/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0902 | | |
| Recorded Test | | 0907 | | |
| O2 | | 13.4 % | | |
| CO | | 7 PPM | | |
| Eff | | 81.5 % | | |
| CO2 | | 4.3 % | | |
| T-Stk | | 251 °F | | |
| T-Air | | 73.8 °F | | |
| EA | | 157.6 % | | |
| CO (15) | | 5 PPM | | |
| NO | | 23 PPM | | |
| NO2 | | 5 PPM | | |
| NOX | | 27 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 18 PPM | | |
| NOX (15) | | 21 PPM | | |
| SO2 (15 | | *** PPM | | |
| Mega Watts | | 9.01 | | |
| KSCF/hour | | 43 | | |

**Signature:** Kenneth W

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

#2 GT DB #2GT

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:07:51 AM
Date: 04/06/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.4 % |
| CO | 7 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.3 % |
| T-STK | 251 °F |
| T-AIR | 73.8 °F |
| EA | 157.6 % |
| CO(15) | 5 ppm |
| NO | 23 ppm |
| $NO_2$ | 5 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.09 inwc

Comments:
MW - 9.01
Klbs/hr - 43

PRINT TEST RESULTS

PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

#2 GT DB #2GT

| Date: 04/06/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0902 | | |
| Recorded Test | | 0907 | | |
| O2 | | 13.4 % | | |
| CO | | 7 PPM | | |
| Eff | | 81.5 % | | |
| CO2 | | 4.3 % | | |
| T-Stk | | 251 °F | | |
| T-Air | | 73.8 °F | | |
| EA | | 157.6 % | | |
| CO (15) | | 5 PPM | | |
| NO | | 23 PPM | | |
| NO2 | | 5 PPM | | |
| NOX | | 27 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 18 PPM | | |
| NOX (15) | | 21 PPM | | |
| SO2 (15 | | *** PPM | | |
| Mega Watts | | 9.01 | | |
| KSCF/hour | | 43 | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:07:51 AM
Date: 04/06/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.4 % |
| CO | 7 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.3 % |
| T-STK | 251 °F |
| T-AIR | 73.8 °F |
| EA | 157.6 % |
| CO(15) | 5 ppm |
| NO | 23 ppm |
| $NO_2$ | 5 ppm |
| NOx | 27 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | **** ppm |

Draft Reading
-0.09 inwc

Comments:
MW - 9.01
Klbs/hr - 43

PRINT TEST RESULTS

PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1158 | | |
| Recorded Test | | 1206 | | |
| O2 | | 13.2% | | |
| CO | | 5ppm | | |
| Eff | | 81.4% | | |
| CO2 | | 4.4% | | |
| T-Stk | | 256°F | | |
| T-Air | | 72.9°F | | |
| EA | | 151.8% | | |
| CO (15) | | 4ppm | | |
| NO | | 27ppm | | |
| NO2 | | 6ppm | | |
| NOX | | 32ppm | | |
| SO2 | | *** | | |
| NO (15) | | 21ppm | | |
| NOX (15) | | 25ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 9.4 | | |
| KSCF/hour | | 55KSCFH | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BL |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler: I** **GT: RI**

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:06:41 PM
Date: 04/20/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.2 % |
| CO | 5 ppm |
| Eff | 81.4 % |
| $CO_2$ | 4.4 % |
| T-STK | 256 °F |
| T-AIR | 72.9 °F |
| EA | 151.8 % |
| CO(15) | 4 ppm |
| NO | 27 ppm |
| $NO_2$ | 6 ppm |
| NOx | 32 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.08 inwc

Comments:
9.4 MW
55 KSCFH

JLTS LTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 04/27/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1110 | | |
| Recorded Test | | 1117 | | |
| O2 | | 12.5% | | |
| CO | | 8ppm | | |
| Eff | | 82.3% | | |
| CO2 | | 4.7% | | |
| T-Stk | | 249°F | | |
| T-Air | | 69.9°F | | |
| EA | | 132.8% | | |
| CO (15) | | 5ppm | | |
| NO | | 30ppm | | |
| NO2 | | 6ppm | | |
| NOX | | 36ppm | | |
| SO2 | | *** | | |
| NO (15) | | 21ppm | | |
| NOX (15) | | 25ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 9.7 MW | | |
| KSCF/hour | | 73KSCFH | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler: RECORD**

**GT: RECORD TI**

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:17:31 AM
Date: 04/27/20

GT 2 w/ DB

Fuel NGAS

| | |
|---|---|
| $O_2$: | 12.5 % |
| CO | 8 ppm |
| Eff | 82.3 % |
| $CO_2$ | 4.7 % |
| T-STK | 249 °F |
| T-AIR | 69.9 °F |
| EA | 132.8 % |
| CO(15) | 5 ppm |
| NO | 30 ppm |
| $NO_2$ | 6 ppm |
| NOx | 36 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.09 inwc

Comments:
9.7 MW
73 KSCFH

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:13:14 PM
Date: 05/04/20

GT#2 W/DB

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.1 % |
| CO | 5 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.4 % |
| T-STK | 261 °F |
| T-AIR | 78.3 °F |
| EA | 150.6 % |
| CO(15) | 3 ppm |
| NO | 27 ppm |
| $NO_2$ | 5 ppm |
| NOx | 32 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.04 inwc

Comments:
8.6 MW
53 KSCFH

# SSION TEST COLLEGE PARK ENERGY

| T 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|
| | 1202 | | |
| | 1213 | | |
| | 13.1% | | |
| | 5ppm | | |
| | 81.5% | | |
| | 4.4% | | |
| | 261°F | | |
| | 78.3°F | | |
| | 150.6% | | |
| | 3ppm | | |
| | 27ppm | | |
| | 5ppm | | |
| | 32ppm | | |
| | *** | | |
| | 20ppm | | |
| | 24ppm | | |
| | *** | | |
| | 8.6 MW | | |
| | 53KSCFH | | |

| BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | | |
|---|---|---|---|---|
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:58:32 AM
Date: 05/11/20

#2 GT
N | DB

Fuel
NGAS

| | |
|---|---|
| $O_{2}$ | 13.4 % |
| CO | 5 ppm |
| Eff | 82.3 % |
| $CO_2$ | 4.2 % |
| T-STK | 235 °F |
| T-AIR | 72.3 °F |
| EA | 158.6 % |
| O (15) | 4 ppm |
| O | 27 ppm |
| $O_2$ | 5 ppm |
| Ox | 32 ppm |
| $O_2$ | *** ppm |
| (15) | 21 ppm |
| $_2$ (15) | 4 ppm |
| x (15) | 25 ppm |
| $_2$ (15) | *** ppm |

Draft Reading
-0.07 inwc

ments:
47 KSCFH
9.2 MW

**SSION TEST COLLEGE PARK ENERGY**

| T 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|
| | 1150 | | |
| | 1158 | | |
| | 13.4% | | |
| | 5ppm | | |
| | 82.3% | | |
| | 4.2% | | |
| | 235°F | | |
| | 72.3°F | | |
| | 158.6% | | |
| | 4ppm | | |
| | 27ppm | | |
| | 5ppm | | |
| | 32ppm | | |
| | *** | | |
| | 21ppm | | |
| | 25ppm | | |
| | *** | | |
| | 9.2 MW | | |
| | 47KSCFH | | |

| BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | | |
|---|---|---|---|---|
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/18/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0945 | | |
| Recorded Test | | 0949 | | |
| O2 | | 13.3 % | | |
| CO | | 5 PPM | | |
| Eff | | 81.5 % | | |
| CO2 | | 4.3 % | | |
| T-Stk | | 254 °F | | |
| T-Air | | 74.0 °F | | |
| EA | | 154.6 % | | |
| CO (15) | | 4 PPM | | |
| NO | | 24 PPM | | |
| NO2 | | 5 PPM | | |
| NOX | | 29 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 19 PPM | | |
| NOX (15) | | 23 PPM | | |
| SO2 (15 | | *** PPM | | |
| Mega Watts | | 8.8 | | |
| KSCF/hour | | 49 | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:49:12 AM
Date: 05/18/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 5 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.3 % |
| T-STK | 254 °F |
| T-AIR | 74.0 °F |
| EA | 154.6 % |
| CO(15) | 4 ppm |
| NO | 24 ppm |
| $NO_2$ | 5 ppm |
| NOx | 29 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.08 inwc

Comments:

N PRINT TEST RESULTS

N PRINT TEST RESULTS

ET

GT-2 DB

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:04:15 AM
Date: 05/25/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 5 ppm |
| Eff | 81.2 % |
| $CO_2$ | 4.3 % |
| T-STK | 259 °F |
| T-AIR | 76.6 °F |
| EA | 158.0 % |
| CO(15) | 4 ppm |
| NO | 23 ppm |
| $NO_2$ | 5 ppm |
| NOx | 28 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.05 inwc

Comments:
mw - 9.1

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/25/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0859 | | |
| Recorded Test | | 0904 | | |
| O2 | | 13.4 % | | |
| CO | | 5 PPM | | |
| Eff | | 81.2 % | | |
| CO2 | | 4.3 % | | |
| T-Stk | | 259 °F | | |
| T-Air | | 76.6 °F | | |
| EA | | 158.0% | | |
| CO (15) | | 4 PPM | | |
| NO | | 23 PPM | | |
| NO2 | | 5 PPM | | |
| NOX | | 28 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 18 PPM | | |
| NOX (15) | | 22 PPM | | |
| SO2 (15 | | *** PPM | | |
| Mega Watts | | 9.1 | | |

**Signature:** Kenneth Will

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |

**Signature:** _____

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

Signature: Kenneth Hall

#2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:17:24 PM
Date: 06/01/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.1 % |
| CO | 4 ppm |
| Eff | 84.2 % |
| $CO_2$ | 9.5 % |
| T-Stk | 344 °F |
| T-Air | 94.9 °F |
| EA | 21.7 % |
| CO(15) | 2 ppm |
| NO | 50 ppm |
| $NO_2$ | 1 ppm |
| NOx | 51 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 18 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr - 33

| Date: 6-1-2020 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1502 | 1436 | | |
| Recorded Test | 1517 | 1451 | | |
| O2 | 4.1 % | 4.9 % | | |
| CO | 4 PPM | 0 PPM | | |
| Eff | 84.2 % | 80.9 % | | |
| CO2 | 9.5 % | 9.0 % | | |
| T-Stk | 344 °F | 437 °F | | |
| T-Air | 94.9 °F | 81.4 °F | | |
| EA | 21.7 % | 27.6 % | | |
| CO (15) | 2 PPM | 0 PPM | | |
| NO | 50 PPM | 72 PPM | | |
| NO2 | 1 PPM | 0 PPM | | |
| NOX | 51 PPM | 72 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 17 PPM | 27 PPM | | |
| NOX (15) | 15 PPM | 27 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| Klbs hour | 33 | 33 | | |

Signature: Kenneth Hall

#4

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:51:14 PM
Date: 06/01/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.9 % |
| CO | 0 ppm |
| Eff | 80.9 % |
| $CO_2$ | 9.0 % |
| T-Stk | 437 °F |
| T-Air | 81.4 °F |
| EA | 27.6 % |
| CO(15) | 0 ppm |
| NO | 72 ppm |
| $NO_2$ | 0 ppm |
| NOx | 72 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 27 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 27 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr - 33

PRINT TEST RESULTS

PRINT TEST RESULTS

**EMISSION TEST COLLEGE P**

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:** Kenneth Will

#2 BLR

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:33:20 AM
Date: 06/08/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.9 % |
| CO | 7 ppm |
| Eff | 83.7 % |
| $CO_2$ | 9.6 % |
| T-Stk | 350 °F |
| T-Air | 83.0 °F |
| EA | 20.2 % |
| CO(15) | 2 ppm |
| NO | 50 ppm |
| $NO_2$ | 1 ppm |
| NOx | 50 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 17 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

51

#4 BLR

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:53:00 AM
Date: 06/08/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.4 % |
| CO | 0 ppm |
| Eff | 80.9 % |
| $CO_2$ | 9.3 % |
| T-Stk | 463 °F |
| T-Air | 98.7 °F |
| EA | 23.9 % |
| CO(15) | 0 ppm |
| NO | 71 ppm |
| $NO_2$ | 0 ppm |
| NOx | 71 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 26 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 26 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

38

| Date: 060820 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | ~~1138~~ 1118 | 1138 | | |
| Recorded Test | ~~1145~~ 1133 | 1153 | | |
| O2 | 3.9 % | 4.4 % | | |
| CO | 7 PPM | 0 PPM | | |
| Eff | 83.7 % | 80.9 % | | |
| CO2 | 9.6 % | 9.3 % | | |
| T-Stk | 350 °F | 463 °F | | |
| T-Air | 83.0 °F | 98.7 °F | | |
| EA | 20.2 % | 23.9 % | | |
| CO (15) | 2 PPM | 0 PPM | | |
| NO | 50 PPM | 71 PPM | | |
| NO2 | 1 PPM | 0 PPM | | |
| NOX | 50 PPM | 71 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 17 PPM | 26 PPM | | |
| NOX (15) | 0 PPM | 0 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 51 | 38 | | |

**Signature:** Kenneth Will

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NUTES AND THEN PRINT TEST RESULTS

)RM TO THIS SHEET

## EMISSION TEST COLLEGE I

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:05:30 AM
Date: 06/15/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.9 % |
| CO | 0 ppm |
| Eff | 80.6 % |
| $CO_2$ | 9.0 % |
| T-Stk | 454 °F |
| T-Air | 88.3 °F |
| EA | 27.4 % |
| CO(15) | 0 ppm |
| NO | 63 ppm |
| $NO_2$ | 0 ppm |
| NOx | 63 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
37KPPH

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:34:57 AM
Date: 06/15/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.7 % |
| CO | 3 ppm |
| Eff | 83.8 % |
| $CO_2$ | 9.7 % |
| T-Stk | 363 °F |
| T-Air | 94.3 °F |
| EA | 19.0 % |
| CO(15) | 1 ppm |
| NO | 50 ppm |
| $NO_2$ | 1 ppm |
| NOx | 51 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 17 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
50KPPH

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | ~~0353~~ 0915 | 0849 |
| Recorded Test | ~~0905~~ 0934 | 0905 |
| O2 | 3.7% | 4.9% |
| CO | 3ppm | 0ppm |
| Eff | 83.8% | 80.6% |
| CO2 | 9.7% | 9.0% |
| T-Stk | 363°F | 454°F |
| T-Air | 94.3°F | 88.3°F |
| EA | 19.0% | 27.4% |
| CO (15) | 1ppm | 0ppm |
| NO | 50ppm | 63ppm |
| NO2 | 1ppm | 0ppm |
| NOX | 51ppm | 63ppm |
| SO2 | *** | *** |
| NO (15) | 17ppm | 23ppm |
| NOX (15) | 17ppm | 23ppm |
| SO2 (15 | *** | *** |
| K lbs/hour | 50KPPH | 37KPPH |

**Signature:** _____

HEN PRINT TEST RESULTS

IEN PRINT TEST RESULTS

IEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 06/22/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | ~~1440~~ | 1440 |
| Recorded Test | | | | 1456 |
| O2 | | | | 15.8% |
| CO | | | | 110 ppm |
| Eff | | | | 26.40% |
| CO2 | | | | 2.9% |
| T-Stk | | | | 953°F |
| T-Air | | | | 91.3°F |
| EA | | | | 250% |
| CO (15) | | | | 126ppm |
| NO | | | | 18ppm |
| NO2 | | | | 0ppm |
| NOX | | | | 18ppm |
| SO2 | | | | *** |
| NO (15) | | | | 21ppm |
| NOX (15) | | | | 21ppm |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 8.3MW |
| KSCF/hour | | | | |

**Signature:**

| Date: 06/22/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1526 | 1459 | | |
| Recorded Test | 1544 | 1517 | | |
| O2 | 3.6% | 4.7% | | |
| CO | 1ppm | 0ppm | | |
| Eff | 84.5% | 81.5% | | |
| CO2 | 9.8% | 9.1% | | |
| T-Stk | 365°F | 453°F | | |
| T-Air | 122.0°F | 117.6°F | | |
| EA | 18.4% | 26.0% | | |
| CO (15) | 0ppm | 0ppm | | |
| NO | 29ppm | 41ppm | | |
| NO2 | 0ppm | 0ppm | | |
| NOX | 29ppm | 41ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 20ppm | 15ppm | | |
| NOX (15) | 10ppm | 15ppm | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 54KPPH | 32KPPH | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:56:20 PM
Date: 06/22/20

#2 GT  Fuel NGAS  8.3 MW

| | |
|---|---|
| $O_2$: | 15.8 % |
| CO | 110 ppm |
| Eff | 26.4 % |
| $CO_2$ | 2.9 % |
| T-Stk | 953 °F |
| T-Air | 91.3 °F |
| EA | 250.0 % |
| CO(15) | 126 ppm |
| NO | 18 ppm |
| $NO_2$ | 0 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:44:54 PM
Date: 06/22/20

#2 BLR  Fuel NGAS  54 KPPH

| | |
|---|---|
| $O_2$: | 3.6 % |
| CO | 1 ppm |
| Eff | 84.5 % |
| $CO_2$ | 9.8 % |
| T-Stk | 365 °F |
| T-Air | 122.0 °F |
| EA | 18.4 % |
| CO(15) | 0 ppm |
| NO | 29 ppm |
| $NO_2$ | 0 ppm |
| NOx | 29 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 10 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 10 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:17:32 PM
Date: 06/22/20

#4 BLR  Fuel NGAS  32 KPPH

| | |
|---|---|
| $O_2$: | 4.7 % |
| CO | 0 ppm |
| Eff | 81.5 % |
| $CO_2$ | 9.1 % |
| T-Stk | 453 °F |
| T-Air | 117.6 °F |
| EA | 28.0 % |
| CO(15) | 0 ppm |
| NO | 41 ppm |
| $NO_2$ | 0 ppm |
| NOx | 41 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 15 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:16:09 AM
Date: 06/29/20

#2 BLR Fuel NGAS

| | |
|---|---|
| $O_2$: | 4.0 % |
| CO | 1 ppm |
| Eff | 84.2 % |
| $CO_2$ | 9.6 % |
| T-Stk | 355 °F |
| T-Air | 106.2 °F |
| EA | 20.8 % |
| CO(15) | 0 ppm |
| NO | 40 ppm |
| $NO_2$ | 0 ppm |
| NOx | 40 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 14 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

52KPPH

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:55:09 AM
Date: 06/29/20

#4 BLR Fuel NGAS

| | |
|---|---|
| $O_2$: | 4.2 % |
| CO | 0 ppm |
| Eff | 80.2 % |
| $CO_2$ | 9.4 % |
| T-Stk | 493 °F |
| T-Air | 100.5 °F |
| EA | 22.6 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 0 ppm |
| NOx | 57 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

46 K PPH

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 0958 | 0938 |
| Recorded Test | 1016 | 0955 |
| O2 | 4.0% | 4.2% |
| CO | 1ppm | 0ppm |
| Eff | 84.2% | 80.2% |
| CO2 | 9.6% | 9.4% |
| T-Stk | 355°F | 493°F |
| T-Air | 106.2°F | 100.5°F |
| EA | 20.8% | 22.6% |
| CO (15) | 0ppm | 0ppm |
| NO | 40ppm | 57ppm |
| NO2 | 0ppm | 0ppm |
| NOX | 40ppm | 57ppm |
| SO2 | *** | *** |
| NO (15) | 14ppm | 20ppm |
| NOX (15) | 14ppm | 20ppm |
| SO2 (15 | *** | *** |
| K lbs/hour | 52KPPH | 46KPPH |

**Signature:** _____

RINT TEST RESULTS

INT TEST RESULTS

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

October 23, 2020

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Ms. Zelma Maldinado
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Ms. Maldinado:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of July 1, 2020 through September 30, 2020.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility July 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | scf/12-months NG | gal/12-months FO | mmbtu/12-months NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 37,829,000 | 0 | 39,567 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 92.40 | 0.00 | 14214.46 | 0.00 | | 370,510,000 | 0 | 387,535 | 0 | 0.0142 | 0.0000 | 0.0142 | 0.9168 | 0.0000 | 0.9168 | 0.0995 | 0.0000 | 0.0995 | 0.0426 | 0.0000 | 0.0426 | 0.0256 | 0.0000 | 0.0256 | 0.0256 | 0.0000 | 0.0256 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 10,764,000 | | 11,259 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 145,131,000 | | 151,800 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 672.00 | 0.00 | 31138.98 | 0.00 | | | | | | 0.0037 | 0.0000 | 0.0037 | 1.5826 | 0.0000 | 1.5826 | 0.0086 | 0.0000 | 0.0086 | 0.0092 | 0.0000 | 0.0092 | 0.1398 | 0.0000 | 0.1398 | 0.1398 | 0.0000 | 0.1398 |
| Boiler 4 | 646.50 | 0.00 | 28497.95 | 0.00 | | | | | | 0.0061 | 0.0000 | 0.0061 | 1.4600 | 0.0000 | 1.4600 | 0.0308 | 0.0000 | 0.0308 | 0.0084 | 0.0000 | 0.0084 | 0.0859 | 0.0000 | 0.0859 | 0.0859 | 0.0000 | 0.0859 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 27.00 | 0.00 | 0.20 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0037 | 0.0000 | 0.0037 | 0.0038 | 0.0000 | 0.0038 | 0.0001 | 0.0000 | 0.0001 | 0.0011 | 0.0000 | 0.0011 | 0.0011 | 0.0000 | 0.0011 |
| Emissions Total | | | | | | | | | | 0.0244 | 0.0000 | 0.0244 | 3.9632 | 0.0000 | 3.9632 | 0.1428 | 0.0000 | 0.1428 | 0.0602 | 0.0000 | 0.0602 | 0.2523 | 0.0000 | 0.2523 | 0.2523 | 0.0000 | 0.2523 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.18 | 72.40 | 5.98 | 1.62 | 4.70 | 4.70 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility August 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 0 | 0 | 0 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 557.80 | 0.00 | 56826.46 | 0.00 | | 424,840,000 | 0 | 444,361 | 0 | 0.0568 | 0.0000 | 0.0568 | 3.6653 | 0.0000 | 3.6653 | 0.3978 | 0.0000 | 0.3978 | 0.1705 | 0.0000 | 0.1705 | 0.1023 | 0.0000 | 0.1023 | 0.1023 | 0.0000 | 0.1023 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 54.40 | | 1893.17 | | | 146,941,000 | | 153,693 | | 0.0051 | | 0.0051 | 0.0123 | | 0.0123 | 0.0095 | | 0.0095 | 0.0006 | | 0.0006 | 0.0019 | | 0.0019 | 0.0019 | | 0.0019 |
| Boiler 2 | 743.50 | 0.00 | 88647.40 | 0.00 | | | | | | 0.0105 | 0.0000 | 0.0105 | 4.5054 | 0.0000 | 4.5054 | 0.0245 | 0.0000 | 0.0245 | 0.0261 | 0.0000 | 0.0261 | 0.3980 | 0.0000 | 0.3980 | 0.3980 | 0.0000 | 0.3980 |
| Boiler 4 | 690.20 | 0.00 | 34732.86 | 0.00 | | | | | | 0.0074 | 0.0000 | 0.0074 | 1.7795 | 0.0000 | 1.7795 | 0.0376 | 0.0000 | 0.0376 | 0.0102 | 0.0000 | 0.0102 | 0.1046 | 0.0000 | 0.1046 | 0.1046 | 0.0000 | 0.1046 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 42.30 | 0.00 | 0.46 | 0.00 | | | | | | 0.0010 | 0.0000 | 0.0010 | 0.0086 | 0.0000 | 0.0086 | 0.0090 | 0.0000 | 0.0090 | 0.0001 | 0.0000 | 0.0001 | 0.0025 | 0.0000 | 0.0025 | 0.0025 | 0.0000 | 0.0025 |
| Emissions Total | | | | | | | | | | 0.0808 | 0.0000 | 0.0808 | 9.9711 | 0.0000 | 9.9711 | 0.4783 | 0.0000 | 0.4783 | 0.2075 | 0.0000 | 0.2075 | 0.6093 | 0.0000 | 0.6093 | 0.6093 | 0.0000 | 0.6093 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.20 | 76.52 | 6.31 | 1.68 | 4.93 | 4.93 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility September 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 39.30 | 0.00 | 0.00 | 0.00 | | 0 | 0 | 0 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 714.30 | 0.00 | 81489.96 | 0.00 | | 502,750,000 | 0 | 525,851 | 0 | 0.0815 | 0.0000 | 0.0815 | 5.2561 | 0.0000 | 5.2561 | 0.5704 | 0.0000 | 0.5704 | 0.2445 | 0.0000 | 0.2445 | 0.1467 | 0.0000 | 0.1467 | 0.1467 | 0.0000 | 0.1467 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 619.80 | | 32748.69 | | | 178,251,000 | | 186,442 | | 0.0883 | | 0.0883 | 0.2129 | | 0.2129 | 0.1637 | | 0.1637 | 0.0096 | | 0.0096 | 0.0321 | | 0.0321 | 0.0321 | | 0.0321 |
| Boiler 2 | 666.90 | 6.50 | 19345.89 | 556.20 | | | | | | 0.0023 | 0.0004 | 0.0027 | 0.9832 | 0.0339 | 1.0172 | 0.0053 | 0.0061 | 0.0115 | 0.0057 | 0.0123 | 0.0180 | 0.0869 | 0.0217 | 0.1086 | 0.0869 | 0.0217 | 0.1086 |
| Boiler 4 | 85.10 | 44.70 | 603.51 | 4112.94 | | | | | | 0.0001 | 0.0028 | 0.0029 | 0.0309 | 0.2687 | 0.2997 | 0.0007 | 0.0626 | 0.0632 | 0.0002 | 0.0884 | 0.0886 | 0.0018 | 0.1419 | 0.1438 | 0.0018 | 0.1419 | 0.1438 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boile | 34.90 | 0.00 | 0.17 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0033 | 0.0000 | 0.0033 | 0.0034 | 0.0000 | 0.0034 | 0.0001 | 0.0000 | 0.0001 | 0.0010 | 0.0000 | 0.0010 | 0.0010 | 0.0000 | 0.0010 |
| Emissions Total | | | | | | | | | | 0.1726 | 0.0032 | 0.1758 | 6.4864 | 0.3027 | 6.7890 | 0.7436 | 0.0687 | 0.8122 | 0.2600 | 0.1007 | 0.3607 | 0.2685 | 0.1637 | 0.4321 | 0.2685 | 0.1637 | 0.4321 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.36 | 79.16 | 7.07 | 2.02 | 5.04 | 5.04 |
| | | OK | OK | OK | OK | OK | OK |

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:57:32 AM
Date: 07/06/20

#4 BLR Fuel NGAS 22KPPH

| | |
|---|---|
| $O_2$ | 6.5 % |
| CO | 0 ppm |
| Eff | 81.9 % |
| $CO_2$ | 8.1 % |
| T-Stk | 404 °F |
| T-Air | 109.7 °F |
| EA | 40.4 % |
| CO(15) | 0 ppm |
| NO | 47 ppm |
| $NO_2$ | 0 ppm |
| NOx | 47 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:25:58 AM
Date: 07/06/20

#2 BLR Fuel NGAS 65KPPH

| | |
|---|---|
| $O_2$ | 3.1 % |
| CO | 2 ppm |
| Eff | 84.0 % |
| $CO_2$ | 10.0 % |
| T-Stk | 381 °F |
| T-Air | 115.3 °F |
| EA | 15.8 % |
| CO(15) | 1 ppm |
| NO | 27 ppm |
| $NO_2$ | 0 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 9 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 9 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1102 | 1035 | | |
| Recorded Test | 1125 | 1057 | | |
| O2 | 3.1% | 6.5% | | |
| CO | 2ppm | 0ppm | | |
| Eff | 84% | 81.9% | | |
| CO2 | 10.0% | 8.1% | | |
| T-Stk | 381°F | 404°F | | |
| T-Air | 115.3°F | 109.7°F | | |
| EA | 15.8% | 40.4% | | |
| CO (15) | 1ppm | 0ppm | | |
| NO | 27ppm | 47ppm | | |
| NO2 | 0ppm | 0ppm | | |
| NOX | 27ppm | 47ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 9ppm | 19ppm | | |
| NOX (15) | 9ppm | 19ppm | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 165KPPH | 22KPPH | | |

**Signature:** _____

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:27:16 PM
Date: 07/13/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.3 % |
| CO | 0 ppm |
| Eff | 81.6 % |
| $CO_2$ | 8.2 % |
| T-Stk | 408 °F |
| T-Air | 101.3 °F |
| EA | 38.8 % |
| CO(15) | 0 ppm |
| NO | 66 ppm |
| $NO_2$ | 0 ppm |
| NOx | 66 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | *** ppm |

Comments: #4 BOILER

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:47:28 PM
Date: 07/13/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.1 % |
| CO | 3 ppm |
| Eff | 83.8 % |
| $CO_2$ | 10.0 % |
| T-Stk | 384 °F |
| T-Air | 110.2 °F |
| EA | 15.7 % |
| CO(15) | 1 ppm |
| NO | 24 ppm |
| $NO_2$ | 0 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 8 ppm |
| $SO_2$(15) | *** ppm |

Comments:
#2 BOILER

NG ATTACH FORM TO THIS SHEET

t), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

art), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

| Date: | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Test | | | | | | | | | | | | | | | | | | | | | | | |
| Recorded Test | | | | | | | | | | | | | | | | | | | | | | | |
| O2 | | | | | | | | | | | | | | | | | | | | | | | |
| CO | | | | | | | | | | | | | | | | | | | | | | | |
| Eff | | | | | | | | | | | | | | | | | | | | | | | |
| CO2 | | | | | | | | | | | | | | | | | | | | | | | |
| T-Stk | | | | | | | | | | | | | | | | | | | | | | | |
| T-Air | | | | | | | | | | | | | | | | | | | | | | | |
| EA | | | | | | | | | | | | | | | | | | | | | | | |
| CO (15) | | | | | | | | | | | | | | | | | | | | | | | |
| NO | | | | | | | | | | | | | | | | | | | | | | | |
| NO2 | | | | | | | | | | | | | | | | | | | | | | | |
| NOX | | | | | | | | | | | | | | | | | | | | | | | |
| SO2 | | | | | | | | | | | | | | | | | | | | | | | |
| NO (15) | | | | | | | | | | | | | | | | | | | | | | | |
| NOX (15) | | | | | | | | | | | | | | | | | | | | | | | |
| SO2 (15 | | | | | | | | | | | | | | | | | | | | | | | |
| Mega Watts | | | | | | | | | | | | | | | | | | | | | | | |
| KSCF/hour | | | | | | | | | | | | | | | | | | | | | | | |

**Signature:**

| Date: 13 JUL 2020 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1631 | 1612 | | |
| Recorded Test | 1647 | 1627 | | |
| O2 | 3.1 % | 6.3% | | |
| CO | 3PPM | 0 PPM | | |
| Eff | 83.8 % | 81.6 % | | |
| CO2 | 10.0% | 8.2 % | | |
| T-Stk | 384°F | 408°F | | |
| T-Air | 110.2°F | 101.3°F | | |
| EA | 15.7 % | 38.8 % | | |
| CO (15) | 1 PPM | 0 PPM | | |
| NO | 24 PPM | 66 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 24 PPM | 66 PPM | | |
| SO2 | — | — | | |
| NO (15) | 8 PPM | 27PPM | | |
| NOX (15) | 8PPM | 27PPM | | |
| SO2 (15) | — | — | | |
| K lbs/hour | 67 | 26 | | |

**Signature:**

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** N/A

BLR #2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:55:20 AM
Date: 07/20/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 5 ppm |
| Eff | 83.2 % |
| $CO_2$ | 9.9 % |
| T-Stk | 398 °F |
| T-Air | 102.7 °F |
| EA | 17.2 % |
| CO(15) | 2 ppm |
| NO | 38 ppm |
| $NO_2$ | 0 ppm |
| NOx | 38 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 13 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr : 68

BLR #4

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:20:20 AM
Date: 07/20/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.8 % |
| CO | 0 ppm |
| Eff | 82.3 % |
| $CO_2$ | 8.5 % |
| T-Stk | 414 °F |
| T-Air | 122.2 °F |
| EA | 34.6 % |
| CO(15) | 0 ppm |
| NO | 59 ppm |
| $NO_2$ | 0 ppm |
| NOx | 59 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr: 26

| Date: 7/20/2020 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1040 | 1105 | | |
| Recorded Test | 1055 | 1120 | | |
| O2 | 3.4 % | 5.8 % | | |
| CO | 5 PPM | 0 PPM | | |
| Eff | 83.2 % | 82.3 % | | |
| CO2 | 9.9 % | 8.5 % | | |
| T-Stk | 398 °F | 414 °F | | |
| T-Air | 102.7°F | 122.2 °F | | |
| EA | 17.2 % | 34.6 % | | |
| CO (15) | 2 PPM | 0 PPM | | |
| NO | 38 PPM | 59 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 38 PPM | 59 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 13 PPM | 23 PPM | | |
| NOX (15) | 13 PPM | 23 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 68 | 26 | | |

**Signature:** Kenneth Lell

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

S SHEET

EMISSION TEST COLLEG

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

Signature:

BLR #2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:24:13 PM
Date: 07/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.2 % |
| CO | 6 ppm |
| Eff | 83.0 % |
| $CO_2$ | 10.0 % |
| T-Stk | 394 °F |
| T-Air | 90.6 °F |
| EA | 15.8 % |
| CO(15) | 2 ppm |
| NO | 41 ppm |
| $NO_2$ | 0 ppm |
| NOx | 41 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 14 ppm |
| $SO_2$(15) | *** ppm |

Comments:
Klbs/h: 70

BLR #4

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:44:56 PM
Date: 07/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 0 ppm |
| Eff | 82.2 % |
| $CO_2$ | 8.6 % |
| T-Stk | 412 °F |
| T-Air | 117.0 °F |
| EA | 33.6 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 0 ppm |
| NOx | 64 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 25 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Comments:
Klbs/h: 24

| Date: 7/27/2020 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1609 | 1629 | | |
| Recorded Test | 1624 | 1644 | | |
| O2 | 3.2 % | 5.7 % | | |
| CO | 6 PPM | 0 PPM | | |
| Eff | 83.0 % | 82.2 % | | |
| CO2 | 10.0 % | 8.6 % | | |
| T-Stk | 394 °F | 412 °F | | |
| T-Air | 90.6 °F | 117.0 °F | | |
| EA | 15.8 % | 33.6 % | | |
| CO (15) | 2 PPM | 0 PPM | | |
| NO | 41 PPM | 64 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 41 PPM | 64 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 14 PPM | 25 PPM | | |
| NOX (15) | 14 PPM | 25 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 70 | 24 | | |

Signature:

NOTES AND THEN PRINT TEST RESULTS

NOTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

## EMISSION TEST COLLEGE P

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:** X

| Date: 08/03/20 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 0759 | 0818 | | |
| Recorded Test | 0814 | 0833 | | |
| O2 | 3.3% | 5.8% | | |
| CO | 9 PPM | 0 PPM | | |
| Eff | 83.0% | 81.9% | | |
| CO2 | 9.9% | 8.5% | | |
| T-Stk | 390°F | 415°F | | |
| T-Air | 89.8°F | 110.4°F | | |
| EA | 16.7% | 34.5% | | |
| CO (15) | 3 PPM | 0 PPM | | |
| NO | 46 PPM | 63 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 46 PPM | 63 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 16 PPM | 25 PPM | | |
| NOX (15) | 16 PPM | 25 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 72 | 23 | | |

**Signature:** Kenneth Wall

BLR #2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:14:39 AM
Date: 08/03/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.3 % |
| CO | 9 ppm |
| Eff | 83.0 % |
| $CO_2$ | 9.9 % |
| T-Stk | 390 °F |
| T-Air | 89.8 °F |
| EA | 16.7 % |
| CO(15) | 3 ppm |
| NO | 46 ppm |
| $NO_2$ | 0 ppm |
| NOx | 46 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 16 ppm |
| $SO_2$(15) | *** ppm |

Comments:

K lbs/hr : 72

BLR #4

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:33:59 AM
Date: 08/03/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.8 % |
| CO | 0 ppm |
| Eff | 81.9 % |
| $CO_2$ | 8.5 % |
| T-Stk | 415 °F |
| T-Air | 110.4 °F |
| EA | 34.5 % |
| CO(15) | 0 ppm |
| NO | 63 ppm |
| $NO_2$ | 0 ppm |
| NOx | 63 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 25 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Comments:

K lbs/hr : 23

D THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

S SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1755 | 1730 | | |
| Recorded Test | 1804 | 1752 | | |
| O2 | 3.5% | 6.5% | | |
| CO | 6ppm | 0ppm | | |
| Eff | 83.2% | 82.0% | | |
| CO2 | 9.8% | 8.1% | | |
| T-Stk | 415°F | 409°F | | |
| T-Air | 122.1°F | 117.7°F | | |
| EA | 18.1% | 40.3% | | |
| CO (15) | 2ppm | 0ppm | | |
| NO | 45ppm | 64ppm | | |
| NO2 | 0ppm | 0ppm | | |
| NOX | 45ppm | 64ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 15ppm | 26ppm | | |
| NOX (15) | 15ppm | 26ppm | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 24 KPPH | 23 KPPH | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 06:04:52 PM
Date: 08/10/20

#2 BOILER

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.5 % |
| CO | 6 ppm |
| Eff | 83.2 % |
| $CO_2$ | 9.8 % |
| T-STK | 415 °F |
| T-AIR | 122.1 °F |
| EA | 18.1 % |
| CO(15) | 2 ppm |
| NO | 45 ppm |
| $NO_2$ | 0 ppm |
| NOx | 45 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 15 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-1.54 inwc

Comments:
74KPPH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 05:52:47 PM
Date: 08/10/20

#4 BOILER

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.5 % |
| CO | 0 ppm |
| Eff | 82.0 % |
| $CO_2$ | 8.1 % |
| T-STK | 409 °F |
| T-AIR | 117.7 °F |
| EA | 40.3 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 0 ppm |
| NOx | 64 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.49 inwc

Comments:
23KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1649 |
| Recorded Test | | | | 1654 |
| O2 | | | | 15.7% |
| CO | | | | 0PPM |
| Eff | | | | 27.2% |
| CO2 | | | | 2.9% |
| T-Stk | | | | 949°F |
| T-Air | | | | 85°F |
| EA | | | | 250.0% |
| CO (15) | | | | 0 PPM |
| NO | | | | 9 PPM |
| NO2 | | | | 0PPM |
| NOX | | | | 9PPM |
| SO2 | | | | *** |
| NO (15) | | | | 11 PPM |
| NOX (15) | | | | 11 PPM |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 8.53 MW |
| KSCF/hour | | | | |

**Signature:** _____

| Date: 08/17/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test ~~1717~~ | 1717 | 1700 | | |
| Recorded Test | 1733 | 1715 | | |
| O2 | 3.3% | 6.6% | | |
| CO | 5ppm | 0 | | |
| Eff | R3.0% | 81.8% | | |
| CO2 | 9.9% | 8.1% | | |
| T-Stk | 413°F | 406°F | | |
| T-Air | 111.5°F | 108.2°F | | |
| EA | 16.7% | 40.6% | | |
| CO (15) | 2ppm | 0PPM | | |
| NO | 44ppm | 45PPM | | |
| NO2 | 1ppm | 0PPM | | |
| NOX | 44ppm | 45PPM | | |
| SO2 | *** | *** | | |
| NO (15) | 15ppm | 18PPM | | |
| NOX (15) | 15ppm | 18PPM | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 83KPPH | 72 KPPH | | |

**Signature:** _____

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:33:10 PM
Date: 08/17/20

#2 BOILER

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.3 % |
| CO | 5 ppm |
| Eff | 83.0 % |
| $CO_2$ | 9.9 % |
| T-Stk | 413 °F |
| T-Air | 111.5 °F |
| EA | 18.7 % |
| CO(15) | 2 ppm |
| NO | 44 ppm |
| $NO_2$ | 1 ppm |
| NOx | 44 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 15 ppm |
| $SO_2$(15) | **** ppm |

Comments:
83KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:54:35 PM
Date: 08/17/20

#2 GT

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.7 % |
| CO | 0 ppm |
| Eff | 27.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 949 °F |
| T-Air | 85.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 9 ppm |
| $NO_2$ | 0 ppm |
| NOx | 9 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 11 ppm |
| $SO_2$(15) | **** ppm |

Comments: 8.53MW

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:15:45 PM
Date: 08/17/20

#4 BOILER

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.6 % |
| CO | 0 ppm |
| Eff | 81.8 % |
| $CO_2$ | 8.1 % |
| T-Stk | 406 °F |
| T-Air | 108.2 °F |
| EA | 40.6 % |
| CO(15) | 0 ppm |
| NO | 45 ppm |
| $NO_2$ | 0 ppm |
| NOx | 45 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | **** ppm |

Comments:
22KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1359 |
| Recorded Test | | | | 1404 |
| O2 | | | | 15.8% |
| CO | | | | 1 PPM |
| Eff | | | | 24.4% |
| CO2 | | | | 2.9% |
| T-Stk | | | | 967° F |
| T-Air | | | | 83.9° F |
| EA | | | | 250% |
| CO (15) | | | | 1 PPM |
| NO | | | | 0 PPM |
| NO2 | | | | 0 PPM |
| NOX | | | | 0 PPM |
| SO2 | | | | *** |
| NO (15) | | | | 0PPM |
| NOX (15) | | | | 0 PPM |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 8 |
| KSCF/hour | | | | |

**Signature:** [signature]

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1408 | ~~1436~~ 1426 | | |
| Recorded Test | 1423 | 1441 | | |
| O2 | 3.5% | 6.5% | | |
| CO | 6PPM | 0 PPM | | |
| Eff | 83.1% | 82% | | |
| CO2 | 9.8% | 8.1% | | |
| T-Stk | 399° F | 408° F | | |
| T-Air | 104.7° F | 116.8° F | | |
| EA | 18% | 39.9% | | |
| CO (15) | 2PPM | 0 PPM | | |
| NO | 15 PPM | 38PPM | | |
| NO2 | 1 PPM | 0PPM | | |
| NOX | 16 PPM | 38 PPM | | |
| SO2 | *** | *** | | |
| NO (15) | 5 PPM | 15 PPM | | |
| NOX (15) | 6PPM | ~~0PPM~~ 15PPM | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 75K | 24 K | | |

**Signature:** [signature]

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:04:04 PM
Date: 08/24/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 1 ppm |
| Eff | 24.4 % |
| $CO_2$ | 2.9 % |
| T-Stk | 987 °F |
| T-Air | 83.9 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 0 ppm |
| $NO_2$ | 0 ppm |
| NOx | 0 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 0 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 0 ppm |
| $SO_2$(15) | *** ppm |

Comments:

GT#2

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:41:36 PM
Date: 08/24/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.5 % |
| CO | 0 ppm |
| Eff | 82.0 % |
| $CO_2$ | 8.1 % |
| T-Stk | 408 °F |
| T-Air | 116.8 °F |
| EA | 39.9 % |
| CO(15) | 0 ppm |
| NO | 38 ppm |
| $NO_2$ | 0 ppm |
| NOx | 38 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 15 ppm |
| $SO_2$(15) | *** ppm |

Comments: BOILER #4

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:23:20 PM
Date: 08/24/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 6 ppm |
| Eff | 83.1 % |
| $CO_2$ | 9.8 % |
| T-Stk | 399 °F |
| T-Air | 104.7 °F |
| EA | 18.0 % |
| CO(15) | 2 ppm |
| NO | 15 ppm |
| $NO_2$ | 1 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 5 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 6 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BOILER #2

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 8/25/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test 0711 | | | | 0711 |
| Recorded Test | | | | 0716 |
| O2 | | | | 15.6% |
| CO | | | | 8 ppm |
| Eff | | | | 27.3% |
| CO2 | | | | 3.0% |
| T-Stk | | | | 963°F |
| T-Air | | | | 84.8°F |
| EA | | | | 250.0% |
| CO (15) | | | | 9 ppm |
| NO | | | | 16 ppm |
| NO2 | | | | 0 ppm |
| NOX | | | | 16 ppm |
| SO2 | | | | *** ppm |
| NO (15) | | | | ~~18 ppm~~ 0 ppm |
| NOX (15) | | | | 18 ppm |
| SO2 (15 | | | | *** ppm |
| Mega Watts | | | | 8.7 MW |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:16:39 AM
Date: 08/25/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 8 ppm |
| Eff | 27.3 % |
| $CO_2$ | 3.0 % |
| T-Stk | 963 °F |
| T-Air | 84.8 °F |
| EA | 250.0 % |
| CO(15) | 9 ppm |
| NO | 16 ppm |
| $NO_2$ | 0 ppm |
| NOx | 16 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | **** ppm |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1634 |
| Recorded Test | | | | 1639 |
| O2 | | | | 15.9% |
| CO | | | | 0 PPM |
| Eff | | | | 23.3% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 961°F |
| T-Air | | | | 85.1°F |
| EA | | | | 250% |
| CO (15) | | | | 1 PPM |
| NO | | | | 18PPM |
| NO2 | | | | 0 PPM |
| NOX | | | | 18 PPM |
| SO2 | | | | *** |
| NO (15) | | | | 21 PPM |
| NOX (15) | | | | 21 PPM |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 8.7 MW |
| KSCF/hour | | | | |

**Signature:** _____

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | 1538 | 1557 |
| Recorded Test | | | 1553 | 1612 |
| O2 | | | 3.2% | 6.5% |
| CO | | | 6 PPM | 0 PPM |
| Eff | | | 82.6% | 81.6% |
| CO2 | | | 10% | 8.1% |
| T-Stk | | | 414°F | 403°F |
| T-Air | | | 92.5°F | 99.3°F |
| EA | | | 15.9% | 40.5% |
| CO (15) | | | 2 PPM | 0 PPM |
| NO | | | 23 PPM | 55 PPM |
| NO2 | | | 1 PPM | 0 PPM |
| NOX | | | 24 PPM | 55 PPM |
| SO2 | | | *** | *** |
| NO (15) | | | 8 PPM | 23 PPM |
| NOX (15) | | | 8 PPM | 23 PPM |
| SO2 (15 | | | *** | *** |
| K lbs/hour | | | 79 KPPH | 21 KPPH |

**Signature:** _____

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:39:27 PM
Date: 08/31/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 23.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 961 °F |
| T-Air | 85.1 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 18 ppm |
| $NO_2$ | 0 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
GT#2
8.7 MW

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:53:43 PM
Date: 08/31/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.2 % |
| CO | 6 ppm |
| Eff | 82.6 % |
| $CO_2$ | 10.0 % |
| T-Stk | 414 °F |
| T-Air | 92.5 °F |
| EA | 15.9 % |
| CO(15) | 2 ppm |
| NO | 23 ppm |
| $NO_2$ | 1 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 8 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 8 ppm |
| $SO_2$ (15) | *** ppm |

Comments: BOILER #2
79 KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:12:37 PM
Date: 08/31/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.5 % |
| CO | 0 ppm |
| Eff | 81.6 % |
| $CO_2$ | 8.1 % |
| T-Stk | 403 °F |
| T-Air | 99.3 °F |
| EA | 40.5 % |
| CO(15) | 0 ppm |
| NO | 55 ppm |
| $NO_2$ | 0 ppm |
| NOx | 55 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
BOILER #4
21 KPPH

## EMISSION TEST COLLEGE

| Date: 09/07/2020 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 1407 |
| Recorded Test | | 1412 |
| O2 | | 13.3% |
| CO | | 6PPM |
| Eff | | 80.7% |
| CO2 | | 4.3% |
| T-Stk | | 272°F |
| T-Air | | 77.6°F |
| EA | | 155.5% |
| CO (15) | | 5PPM |
| NO | | 22 PPM |
| NO2 | | 3PPM |
| NOX | | 25PPM |
| SO2 | | *** |
| NO (15) | | 17 PPM |
| NOX (15) | | 20 PPM |
| SO2 (15 | | *** |
| Mega Watts | | 7.76 |
| KSCF/hour | | 48 |

**Signature:** [signature]

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:12:48 PM
Date: 09/07/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 6 ppm |
| Eff | 80.7 % |
| $CO_2$ | 4.3 % |
| T-Stk | 272 °F |
| T-Air | 77.6 °F |
| EA | 155.5 % |
| CO(15) | 5 ppm |
| NO | 22 ppm |
| $NO_2$ | 3 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:
GT#2 COMBINED
48 KSCF/H
7.76 MW

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:41:25 PM
Date: 09/07/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.0 % |
| CO | 0 ppm |
| Eff | 84.6 % |
| $CO_2$ | 7.9 % |
| T-Stk | 302 °F |
| T-Air | 101.8 °F |
| EA | 44.4 % |
| CO(15) | 0 ppm |
| NO | 43 ppm |
| $NO_2$ | 1 ppm |
| NOx | 44 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:
BOILER #2
24.74 KPPH

| Date: 09/07/2020 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1426 | | | |
| Recorded Test | 1441 | | | |
| O2 | 7% | | | |
| CO | 0PPM | | | |
| Eff | 84.6% | | | |
| CO2 | 7.9% | | | |
| T-Stk | 302°F | | | |
| T-Air | 101.8°F | | | |
| EA | 44.4% | | | |
| CO (15) | 0PPM | | | |
| NO | 43 PPM | | | |
| NO2 | 1 PPM | | | |
| NOX | 44 PPM | | | |
| SO2 | *** | | | |
| NO (15) | 18PPM | | | |
| NOX (15) | 19 PPM | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 24.74 KPPH | | | |

**Signature:** [signature]

D THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE I

| Date: 9/14/2020 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 1358 |
| Recorded Test | | 1403 |
| O2 | | 13.6 % |
| CO | | 5 PPM |
| Eff | | 80.8 % |
| CO2 | | 4.1 % |
| T-Stk | | 275 °F |
| T-Air | | 88.5 °F |
| EA | | 164.8 % |
| CO (15) | | 4 PPM |
| NO | | 22 PPM |
| NO2 | | 3 PPM |
| NOX | | 25 PPM |
| SO2 | | *** PPM |
| NO (15) | | 18 PPM |
| NOX (15) | | 20 PPM |
| SO2 (15 | | *** PPM |
| Mega Watts | | 7.8 |
| KSCF/hour | | 48 |

**Signature:** Kenneth Wall

| Date: 9/14/2020 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1404 | |
| Recorded Test | 1419 | |
| O2 | 7.3 % | |
| CO | 12 PPM | |
| Eff | 84.4 % | |
| CO2 | 7.7 % | |
| T-Stk | 296 °F | |
| T-Air | 92.7 °F | |
| EA | 47.8 % | |
| CO (15) | 5 PPM | |
| NO | 38 PPM | |
| NO2 | 6 PPM | |
| NOX | 44 PPM | |
| SO2 | *** PPM | |
| NO (15) | 17 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | 18 | |

**Signature:** Kenneth Wall

GT #2 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:03:13 PM
Date: 09/14/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.6 % |
| CO | 5 ppm |
| Eff | 80.8 % |
| $CO_2$ | 4.1 % |
| T-Stk | 275 °F |
| T-Air | 88.5 °F |
| EA | 164.8 % |
| CO(15) | 4 ppm |
| NO | 22 ppm |
| $NO_2$ | 3 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:
Mega Watts : 7.8
KSCF/hr : 48

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:19:12 PM
Date: 09/14/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.3 % |
| CO | 12 ppm |
| Eff | 84.4 % |
| $CO_2$ | 7.7 % |
| T-Stk | 296 °F |
| T-Air | 92.7 °F |
| EA | 47.8 % |
| CO(15) | 5 ppm |
| NO | 38 ppm |
| $NO_2$ | 6 ppm |
| NOx | 44 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:
K lbs/hr 18

D THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

S SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 09/21/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1530 |
| Recorded Test | | | | 1537 |
| O2 | | | | 15.7% |
| CO | | | | 0ppm |
| Eff | | | | 27.9% |
| CO2 | | | | 3.0% |
| T-Stk | | | | 948°F |
| T-Air | | | | 90.8°F |
| EA | | | | 250% |
| CO (15) | | | | 0ppm |
| NO | | | | *** |
| NO2 | | | | 0ppm |
| NOX | | | | *** |
| SO2 | | | | *** |
| NO (15) | | | | *** |
| NOX (15) | | | | *** |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 9.2MW (SC) |
| KSCF/hour | | | | |

**Signature:** Dario Delcan

| Date: 09/21/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1601 | | | |
| Recorded Test | 1616 | | | |
| O2 | 3.9% | | | |
| CO | 98ppm | | | |
| Eff | 81.9% | | | |
| CO2 | 9.6% | | | |
| T-Stk | 426°F | | | |
| T-Air | 89.4°F | | | |
| EA | 20.3% | | | |
| CO (15) | 34ppm | | | |
| NO | *** | | | |
| NO2 | 1ppm | | | |
| NOX | *** | | | |
| SO2 | *** | | | |
| NO (15) | *** | | | |
| NOX (15) | *** | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 85KPPH | | | |

**Signature:** Dario Delcan

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:16:17 PM
Date: 09/21/20

Boiler #2 85KPPH

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.9 % |
| CO | 98 ppm |
| Eff | 81.9 % |
| $CO_2$ | 9.6 % |
| T-Stk | 426 °F |
| T-Air | 89.4 °F |
| EA | 20.3 % |
| CO(15) | 34 ppm |
| NO | *** ppm |
| $NO_2$ | 1 ppm |
| NOx | *** ppm |
| $SO_2$ | *** ppm |
| NO(15) | *** ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | *** ppm |
| $SO_2$ (15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:37:24 PM
Date: 09/21/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 0 ppm |
| Eff | 27.9 % |
| $CO_2$ | 3.0 % |
| T-Stk | 948 °F |
| T-Air | 90.8 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | *** ppm |
| $NO_2$ | 0 ppm |
| NOx | *** ppm |
| $SO_2$ | *** ppm |
| NO(15) | *** ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | *** ppm |
| $SO_2$ (15) | *** ppm |

Comments:
GT#2 SIMPLE
9.2MW CYCLE

## EMISSION TEST COLLEGE

| Date: 9/24/2020 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 0747 |
| Recorded Test | | 0757 |
| O2 | | 15.8 % |
| CO | | 0 PPM |
| Eff | | 75.1 % |
| CO2 | | 2.9 % |
| T-Stk | | 280 °F |
| T-Air | | 69.1 °F |
| EA | | 250.0 % |
| CO (15) | | 0 PPM |
| NO | | 17 PPM |
| NO2 | | 2 PPM |
| NOX | | 19 PPM |
| SO2 | | *** PPM |
| NO (15) | | 20 PPM |
| NOX (15) | | 22 PPM |
| SO2 (15 | | *** PPM |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** Kenneth

| Date: 9/22/2020 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 0726 | |
| Recorded Test | 0741 | |
| O2 | 3.4 % | |
| CO | 6 PPM | |
| Eff | 82.5 % | |
| CO2 | 9.9 % | |
| T-Stk | 394 °F | |
| T-Air | 73.2 °F | |
| EA | 17.5 % | |
| CO (15) | 2 PPM | |
| NO | 55 PPM | |
| NO2 | 1 PPM | |
| NOX | 57 PPM | |
| SO2 | *** PPM | |
| NO (15) | 19 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | | |

**Signature:** Kenneth

GT2DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:52:56 AM
Date: 09/22/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 75.1 % |
| $CO_2$ | 2.9 % |
| T-Stk | 280 °F |
| T-Air | 69.1 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 17 ppm |
| $NO_2$ | 2 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | *** ppm |

Comments: 9.2

Time: 04:22:06 PM
Date: 09/22/20

Fuel
Oil 2

| | |
|---|---|
| $O_2$ | 5.2 % |
| CO | 0 ppm |
| Eff | 81.3 % |
| $CO_2$ | 11.7 % |
| T-STK | 605 °F |
| T-AIR | 100.0 °F |
| EA | 30.7 % |
| CO(15) | 0 ppm |
| NO | 100 ppm |
| $NO_2$ | 0 ppm |
| NOx | 100 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 37 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 38 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-1.40 inwc

Comments:

BLR 4

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:41:14 AM
Date: 09/22/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 6 ppm |
| Eff | 82.5 % |
| $CO_2$ | 9.9 % |
| T-Stk | 394 °F |
| T-Air | 73.2 °F |
| EA | 17.5 % |
| CO(15) | 2 ppm |
| NO | 55 ppm |
| $NO_2$ | 1 ppm |
| NOx | 57 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 19 ppm |
| $SO_2$ (15) | *** ppm |

SHEET

## EMISSION TEST COLLEGE PARI

| Date: 09/28/20 | GT 1 DB | GT 2 DB | C |
|---|---|---|---|
| Start Test | | 1035 | |
| Recorded Test | | 1040 | |
| O2 | | 15.2 % | |
| CO | | 4 PPM | |
| Eff | | 79.0 % | |
| CO2 | | 3.2 % | |
| T-Stk | | 266 °F | |
| T-Air | | 91.0 °F | |
| EA | | 238.2 % | |
| CO (15) | | 4 PPM | |
| NO | | 16 PPM | |
| NO2 | | 2 PPM | |
| NOX | | 18 PPM | |
| SO2 | | *** PPM | |
| NO (15) | | 17 PPM | |
| NOX (15) | | 19 PPM | |
| SO2 (15 | | *** PPM | |
| Mega Watts | | 8.32 | |
| KSCF/hour | | 54 | |

**Signature:**

| Date: 09/28/20 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1017 | | | |
| Recorded Test | 1032 | | | |
| O2 | 12.5 % | | | |
| CO | 0 PPM | | | |
| Eff | 82.7 % | | | |
| CO2 | 4.7 % | | | |
| T-Stk | 257 °F | | | |
| T-Air | 85.8 °F | | | |
| EA | 132.9 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 10 PPM | | | |
| NO2 | 1 PPM | | | |
| NOX | 10 PPM | | | |
| SO2 | *** PPM | | | |
| NO (15) | 7 PPM | | | |
| NOX (15) | 7 PPM | | | |
| SO2 (15 | *** PPM | | | |
| K lbs/hour | 10 | | | |

**Signature:**

GT 2 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:40:03 AM
Date: 09/28/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.2 % |
| CO | 4 ppm |
| Eff | 79.0 % |
| $CO_2$ | 3.2 % |
| T-Stk | 266 °F |
| T-Air | 91.0 °F |
| EA | 238.2 % |
| CO(15) | 4 ppm |
| NO | 16 ppm |
| $NO_2$ | 2 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 8.32
KSCF/h: 54

Boiler #2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:32:07 AM
Date: 09/28/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 12.5 % |
| CO | 0 ppm |
| Eff | 82.7 % |
| $CO_2$ | 4.7 % |
| T-Stk | 257 °F |
| T-Air | 85.8 °F |
| EA | 132.9 % |
| CO(15) | 0 ppm |
| NO | 10 ppm |
| $NO_2$ | 1 ppm |
| NOx | 10 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 7 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 7 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

K lbs/h: 10

RESULTS

RESULTS

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

January 15, 2021

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director Air
Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Director:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of October 1, 2020 through December 31, 2020.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility October 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC | | | NOx | | | CO | | | $SO_2$ | | | $PM_{10}$ | | | PM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | scf/12-months | gal/12-months | mmbtu/12-months | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | |
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 382.90 | 0.00 | 42612.00 | 0.00 | | 40,740,000 | 0 | 42,612 | 0 | 0.0213 | 0.0000 | 0.0213 | 2.5780 | 0.0000 | 2.5780 | 0.0639 | 0.0000 | 0.0639 | 0.1278 | 0.0000 | 0.1278 | 0.1044 | 0.0000 | 0.1044 | 0.1044 | 0.0000 | 0.1044 |
| Turbine 2 | 743.20 | 0.00 | 93131.39 | 0.00 | | 591,790,000 | 0 | 618,983 | 0 | 0.0931 | 0.0000 | 0.0931 | 6.0070 | 0.0000 | 6.0070 | 0.6519 | 0.0000 | 0.6519 | 0.2794 | 0.0000 | 0.2794 | 0.1676 | 0.0000 | 0.1676 | 0.1676 | 0.0000 | 0.1676 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 693.20 | | 27194.70 | | | 204,251,000 | | 213,636 | | 0.0733 | | 0.0733 | 0.1768 | | 0.1768 | 0.1360 | | 0.1360 | 0.0080 | | 0.0080 | 0.0267 | | 0.0267 | 0.0267 | | 0.0267 |
| Boiler 2 | 448.00 | 47.80 | 7982.69 | 5039.75 | | | | | | 0.0009 | 0.0039 | 0.0048 | 0.4057 | 0.3074 | 0.7131 | 0.0022 | 0.0554 | 0.0576 | 0.0023 | 0.1112 | 0.1136 | 0.0358 | 0.1968 | 0.2327 | 0.0358 | 0.1968 | 0.2327 |
| Boiler 4 | 0.00 | 0.00 | 1.05 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boiler | 88.50 | 21.20 | 0.71 | 11849.00 | | | | | | 0.0015 | 0.0033 | 0.0047 | 0.0133 | 0.0814 | 0.0948 | 0.0139 | 0.0305 | 0.0444 | 0.0002 | 0.0013 | 0.0015 | 0.0039 | 0.0794 | 0.0834 | 0.0039 | 0.0794 | 0.0834 |
| Emissions Total | | | | | | | | | | 0.1902 | 0.0071 | 0.1973 | 9.1808 | 0.3888 | 9.5697 | 0.8679 | 0.0859 | 0.9538 | 0.4178 | 0.1125 | 0.5303 | 0.3385 | 0.2763 | 0.6147 | 0.3385 | 0.2763 | 0.6147 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.54 | 83.67 | 7.96 | 2.52 | 5.28 | 5.28 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility November 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 720.00 | 0.00 | 86071.23 | 0.00 | | 123,030,000 | 0 | 128,683 | 0 | 0.0430 | 0.0000 | 0.0430 | 5.2073 | 0.0000 | 5.2073 | 0.1291 | 0.0000 | 0.1291 | 0.2582 | 0.0000 | 0.2582 | 0.2109 | 0.0000 | 0.2109 | 0.2109 | 0.0000 | 0.2109 |
| Turbine 2 | 716.70 | 0.00 | 89878.48 | 0.00 | | 677,720,000 | 0 | 708,861 | 0 | 0.0899 | 0.0000 | 0.0899 | 5.7972 | 0.0000 | 5.7972 | 0.6291 | 0.0000 | 0.6291 | 0.2696 | 0.0000 | 0.2696 | 0.1618 | 0.0000 | 0.1618 | 0.1618 | 0.0000 | 0.1618 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 711.60 | | 27801.35 | | | 230,831,000 | | 241,438 | | 0.0750 | | 0.0750 | 0.1807 | | 0.1807 | 0.1390 | | 0.1390 | 0.0082 | | 0.0082 | 0.0273 | | 0.0273 | 0.0273 | | 0.0273 |
| Boiler 2 | 229.60 | 0.00 | 6322.77 | 0.00 | | | | | | 0.0007 | 0.0000 | 0.0007 | 0.3213 | 0.0000 | 0.3213 | 0.0017 | 0.0000 | 0.0017 | 0.0019 | 0.0000 | 0.0019 | 0.0284 | 0.0000 | 0.0284 | 0.0284 | 0.0000 | 0.0284 |
| Boiler 4 | 36.00 | 15.50 | 605.61 | 223.39 | | | | | | 0.0001 | 0.0002 | 0.0003 | 0.0310 | 0.0146 | 0.0456 | 0.0007 | 0.0034 | 0.0041 | 0.0002 | 0.0048 | 0.0050 | 0.0018 | 0.0077 | 0.0095 | 0.0018 | 0.0077 | 0.0095 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boiler | 36.60 | 0.00 | 0.21 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0039 | 0.0000 | 0.0039 | 0.0041 | 0.0000 | 0.0041 | 0.0001 | 0.0000 | 0.0001 | 0.0011 | 0.0000 | 0.0011 | 0.0011 | 0.0000 | 0.0011 |
| Emissions Total | | | | | | | | | | 0.2092 | 0.0002 | 0.2093 | 11.5415 | 0.0146 | 11.5560 | 0.9037 | 0.0034 | 0.9071 | 0.5381 | 0.0048 | 0.5429 | 0.4313 | 0.0077 | 0.4390 | 0.4313 | 0.0077 | 0.4390 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.73 | 88.81 | 8.79 | 3.01 | 5.20 | 5.20 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility December 2020**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC | | | NOx | | | CO | | | $SO_2$ | | | $PM_{10}$ | | | PM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | scf/12-months | gal/12-months | mmbtu/12-months | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | | tons/month | | |
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 632.40 | 0.00 | 76553.08 | 0.00 | | 196,220,000 | 0 | 205,236 | 0 | 0.0383 | 0.0000 | 0.0383 | 4.6315 | 0.0000 | 4.6315 | 0.1148 | 0.0000 | 0.1148 | 0.2297 | 0.0000 | 0.2297 | 0.1876 | 0.0000 | 0.1876 | 0.1876 | 0.0000 | 0.1876 |
| Turbine 2 | 728.80 | 0.00 | 91353.27 | 0.00 | | 765,060,000 | 0 | 800,215 | 0 | 0.0914 | 0.0000 | 0.0914 | 5.8923 | 0.0000 | 5.8923 | 0.6395 | 0.0000 | 0.6395 | 0.2741 | 0.0000 | 0.2741 | 0.1644 | 0.0000 | 0.1644 | 0.1644 | 0.0000 | 0.1644 |
| Duct Burner 1 | 527.90 | | 6976.49 | | | 6,670,000 | | 6,976 | | 0.0188 | | 0.0188 | 0.0453 | | 0.0453 | 0.0349 | | 0.0349 | 0.0021 | | 0.0021 | 0.0068 | | 0.0068 | 0.0068 | | 0.0068 |
| Duct Burner 2 | 695.80 | | 31681.83 | | | 261,121,000 | | 273,120 | | 0.0854 | | 0.0854 | 0.2059 | | 0.2059 | 0.1584 | | 0.1584 | 0.0093 | | 0.0093 | 0.0311 | | 0.0311 | 0.0311 | | 0.0311 |
| Boiler 2 | 655.10 | 35.70 | 44251.01 | 2826.91 | | | | | | 0.0052 | 0.0022 | 0.0074 | 2.2490 | 0.1724 | 2.4214 | 0.0122 | 0.0310 | 0.0433 | 0.0130 | 0.0624 | 0.0754 | 0.1987 | 0.1104 | 0.3091 | 0.1987 | 0.1104 | 0.3091 |
| Boiler 4 | 87.60 | 35.70 | 1330.45 | 1975.98 | | | | | | 0.0003 | 0.0013 | 0.0016 | 0.0682 | 0.1291 | 0.1973 | 0.0014 | 0.0301 | 0.0315 | 0.0004 | 0.0425 | 0.0429 | 0.0040 | 0.0682 | 0.0722 | 0.0040 | 0.0682 | 0.0722 |
| Emerg. Gen. | | 0.00 | | 0.00 | 51.7 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Temporary Boiler | 50.40 | 33.00 | 0.49 | 4765.00 | | | | | | 0.0010 | 0.0013 | 0.0023 | 0.0092 | 0.0328 | 0.0420 | 0.0096 | 0.0123 | 0.0219 | 0.0002 | 0.0005 | 0.0007 | 0.0027 | 0.0319 | 0.0347 | 0.0027 | 0.0319 | 0.0347 |
| Emissions Total | | | | | | | | | | 0.2404 | 0.0048 | 0.2452 | 13.1014 | 0.3343 | 13.4357 | 0.9708 | 0.0734 | 1.0442 | 0.5286 | 0.1054 | 0.6340 | 0.5953 | 0.2105 | 0.8059 | 0.5953 | 0.2105 | 0.8059 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.93 | 94.50 | 9.50 | 3.59 | 5.34 | 5.34 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/05/2020 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 14:07 | | |
| Recorded Test | | 14:07 | | |
| O2 | | 15.2 % | | |
| CO | | 4 ppm | | |
| Eff | | 77.0 % | | |
| CO2 | | 3.2% | | |
| T-Stk | | 287° F | | |
| T-Air | | 80.5° F | | |
| EA | | 234.8 % | | |
| CO (15) | | 4 ppm | | |
| NO | | 19 ppm | | |
| NO2 | | 3 ppm | | |
| NOX | | 31 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 19 ppm | | |
| NOX (15) | | 29 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 9.4 MW | | |
| KSCF/hour | | 30 | | |

**Signature:**

Temp

| Date: 10/05/2020 | ~~BLR 2~~ | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 14:17 | | | |
| Recorded Test | 14:34 | | | |
| O2 | 15.6% | | | |
| CO | 2 ppm | | | |
| Eff | 99.7% | | | |
| CO2 | 3.0% | | | |
| T-Stk | 74° F | | | |
| T-Air | 81.0° F | | | |
| EA | 350.0 % | | | |
| CO (15) | 2 ppm | | | |
| NO | 15 ppm | | | |
| NO2 | 0 ppm | | | |
| NOX | 15 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 16 ppm | | | |
| NOX (15) | 16 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 10 KPPH | | | |

**Signature:**

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:34:07 PM
Date: 10/05/20

TEMP BOILER Fuel NGAS 10KPPH

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 2 ppm |
| Eff | 99.7 % |
| $CO_2$ | 3.0 % |
| T-Stk | 74 °F |
| T-Air | 81.0 °F |
| EA | 250.0 % |
| CO(15) | 2 ppm |
| NO | 15 ppm |
| $NO_2$ | 0 ppm |
| NOx | 15 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 16 ppm |
| $SO_2$(15) | **** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:07:06 PM
Date: 10/05/20

GT #2 W/DB 9.4 MW Fuel NGAS 30 KSCFH

| | |
|---|---|
| $O_2$ | 15.2 % |
| CO | 4 ppm |
| Eff | 77.0 % |
| $CO_2$ | 3.2 % |
| T-Stk | 287 °F |
| T-Air | 80.5 °F |
| EA | 234.8 % |
| CO(15) | 4 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 21 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | **** ppm |

Comments:

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 10/13/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test 11:26 | | 11:26 | | |
| Recorded Test 11:37 | | 11:37 | | |
| O2 | | 14.0% | | |
| CO | | 9ppm | | |
| Eff | | 81.3% | | |
| CO2 | | 3.9% | | |
| T-Stk | | 738°F | | |
| T-Air | | 69.7°F | | |
| EA | | 199.3% | | |
| CO (15) | | 7ppm | | |
| NO | | 19ppm | | |
| NO2 | | 4ppm | | |
| NOX | | 23ppm | | |
| SO2 | | *** | | |
| NO (15) | | 16ppm | | |
| NOX (15) | | 20ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 88 MW | | |
| KSCF/hour | | 67 KSCF | | |

**Signature:**

| Date: 10/13/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 11:36 | | | |
| Recorded Test | 11:50 | | | |
| O2 | 11.7% | | | |
| CO | 19ppm | | | |
| Eff | 81.1% | | | |
| CO2 | 5.2% | | | |
| T-Stk | 298°F | | | |
| T-Air | 78.3°F | | | |
| EA | 113.3% | | | |
| CO (15) | 12ppm | | | |
| NO | 16ppm | | | |
| NO2 | 4ppm | | | |
| NOX | 20ppm | | | |
| SO2 | *** | | | |
| NO (15) | 10ppm | | | |
| NOX (15) | 13ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 20 KLBS | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:32:43 AM
Date: 10/12/20 GT#7

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 9 ppm |
| Eff | 81.3 % |
| $CO_2$ | 3.9 % |
| T-Stk | 238 °F |
| T-Air | 69.2 °F |
| EA | 179.3 % |
| CO(15) | 7 ppm |
| NO | 19 ppm |
| $NO_2$ | 4 ppm |
| NOx | 23 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | ***** ppm |

Comments: 88MW
62KSCF/Hour

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:52:37 AM
Date: 10/12/20 Boiler#7

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 11.7 % |
| CO | 19 ppm |
| Eff | 81.1 % |
| $CO_2$ | 5.2 % |
| T-Stk | 298 °F |
| T-Air | 78.3 °F |
| EA | 113.3 % |
| CO(15) | 12 ppm |
| NO | 16 ppm |
| $NO_2$ | 4 ppm |
| NOx | 20 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 13 ppm |
| $SO_2$(15) | ***** ppm |

Comments: 20 Kibs/hour

BACHARACH, INC.
PCA 3
SN: TP1006 GT#3 OB

Time: 09:15:22 AM
Date: 10/19/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.5 % |
| CO | 7 ppm |
| Eff | 76.4 % |
| $CO_2$ | 4.2 % |
| T-Stk | 350 °F |
| T-Air | 79.5 °F |
| EA | 161.9 % |
| CO(15) | 5 ppm |
| NO | 21 ppm |
| $NO_2$ | 2 ppm |
| NOx | 23 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 18 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006 Boiler #2

Time: 09:00:38 AM
Date: 10/19/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 12.4 % |
| CO | 1 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.8 % |
| T-Stk | 279 °F |
| T-Air | 80.2 °F |
| EA | 130.0 % |
| CO(15) | 1 ppm |
| NO | 32 ppm |
| $NO_2$ | 2 ppm |
| NOx | 33 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 22 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/19/2020 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0 | 09:10 | | |
| Recorded Test | | 09:15 | | |
| O2 | | 13.5% | | |
| CO | | 7ppm | | |
| Eff | | 76.4% | | |
| CO2 | | 4.7% | | |
| T-Stk | | 350°F | | |
| T-Air | | 79.5°F | | |
| EA | | 161.9% | | |
| CO (15) | | 5ppm | | |
| NO | | 31ppm | | |
| NO2 | | 2ppm | | |
| NOX | | 33ppm | | |
| SO2 | | *** | | |
| NO (15) | | 16ppm | | |
| NOX (15) | | 18ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.32 | | |
| KSCF/hour | | 84 KSCF/H | | |

**Signature:**

| Date: 10/19/2020 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 08:54 | | | |
| Recorded Test | 09:00 | | | |
| O2 | 12.4% | | | |
| CO | 1ppm | | | |
| Eff | 81.5% | | | |
| CO2 | 4.8% | | | |
| T-Stk | 379°F | | | |
| T-Air | 80.7°F | | | |
| EA | 130.0% | | | |
| CO (15) | 1ppm | | | |
| NO | 39ppm | | | |
| NO2 | 2ppm | | | |
| NOX | 39ppm | | | |
| SO2 | *** | | | |
| NO (15) | 20ppm | | | |
| NOX (15) | 23ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 11 KLBS/H | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/26/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 17:35 | |
| Recorded Test | | | 17:40 | |
| O2 | | | 15.6% | |
| CO | | | 0ppm | |
| Eff | | | 68.1% | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 403° F | |
| T-Air | | | 91.6°F | |
| EA | | | 350% | |
| CO (15) | | | 0ppm | |
| NO | | | 16ppm | |
| NO2 | | | 2ppm | |
| NOX | | | 18ppm | |
| SO2 | | | *** | |
| NO (15) | | | 18ppm | |
| NOX (15) | | | 20ppm | |
| SO2 (15 | | | *** | |
| Mega Watts | 7 | | 8.8 | |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RU

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RE

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/26/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 17:05 | | |
| Recorded Test | | 17:10 | | |
| O2 | | 15.8% | | |
| CO | | 1 ppm | | |
| Eff | | 20.0% | | |
| CO2 | | 2.9% | | |
| T-Stk | | 373° F | | |
| T-Air | | 94.8° F | | |
| EA | | 250.0% | | |
| CO (15) | | 1 ppm | | |
| NO | | 14 ppm | | |
| NO2 | | 3 ppm | | |
| NOX | | 16 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 16 ppm | | |
| NOX (15) | | 19 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.7 | | |
| KSCF/hour | | 18 | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST R

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RI

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006 GT1

Time: 05:40:55 PM
Date: 10/26/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 0 ppm |
| Eff | 68.1 % |
| $CO_2$ | 3.0 % |
| T-Stk | 403 °F |
| T-Air | 91.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 2 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006 GT2DB

Time: 05:10:08 PM
Date: 10/26/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 1 ppm |
| Eff | 70.0 % |
| $CO_2$ | 2.9 % |
| T-Stk | 373 °F |
| T-Air | 94.8 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/20/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0534 | |
| Recorded Test | | | 0538 | |
| O2 | | | 15.6 % | |
| CO | | | 1 PPM | |
| Eff | | | 28.5 % | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 960 °F | |
| T-Air | | | 102.1 °F | |
| EA | | | 250.0 % | |
| CO (15) | | | 1 PPM | |
| NO | | | 20 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 20 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 22 PPM | |
| NOX (15) | | | 22 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 8.6 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:38:40 PM
Date: 10/20/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.6 % |
| CO | 1 ppm |
| Eff | 28.5 % |
| $CO_2$ | 3.0 % |
| T-Stk | 960 °F |
| T-Air | 102.1 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 20 ppm |
| $NO_2$ | 0 ppm |
| NOx | 20 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Comments: GT1-8.6 MW
OAT-72°

S AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/21/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0551 | |
| Recorded Test | | | 0556 | |
| O2 | | | 15.4 % | |
| CO | | | 0 PPM | |
| Eff | | | 30.1 % | |
| CO2 | | | 3.1 % | |
| T-Stk | | | 960 °F | |
| T-Air | | | 91.1 °F | |
| EA | | | 248.4 % | |
| CO (15) | | | 0 PPM | |
| NO | | | 21 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 22 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 23 PPM | |
| NOX (15) | | | 23 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 9.3 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Wilde

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

GT 1

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:56:33 AM
Date: 10/21/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.4 % |
| CO | 0 ppm |
| Eff | 30.1 % |
| $CO_2$ | 3.1 % |
| T-Stk | 960 °F |
| T-Air | 91.1 °F |
| EA | 248.4 % |
| CO(15) | 0 ppm |
| NO | 21 ppm |
| $NO_2$ | 0 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW 9.3

I TO THIS SHEET

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/21/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0559 | |
| Recorded Test | | | 0603 | |
| O2 | | | 15.6% | |
| CO | | | 0 PPM | |
| Eff | | | 28.7% | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 955 °F | |
| T-Air | | | 103.8 °F | |
| EA | | | 250.0% | |
| CO (15) | | | 0 PPM | |
| NO | | | 16 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 16 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 18 PPM | |
| NOX (15) | | | 18 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 8.5 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Wilds

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:03:45 PM
Date: 10/21/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 0 ppm |
| Eff | 28.7 % |
| $CO_2$ | 3.0 % |
| T-Stk | 955 °F |
| T-Air | 103.8 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 0 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | *** ppm |

Comments: MW: 8.5
DAT: 78°

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/22/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0555 | |
| Recorded Test | | | 0600 | |
| O2 | | | 15.5 % | |
| CO | | | 0 PPM | |
| Eff | | | 28.3% | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 963 °F | |
| T-Air | | | 92.0 °F | |
| EA | | | 250.0 % | |
| CO (15) | | | 0 PPM | |
| NO | | | 21 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 21 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 23 PPM | |
| NOX (15) | | | 23 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 9.2 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Will

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:00:34 AM
Date: 10/22/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.5 % |
| CO | 0 ppm |
| Eff | 28.3 % |
| $CO_2$ | 3.0 % |
| T-Stk | 963 °F |
| T-Air | 92.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 21 ppm |
| $NO_2$ | 0 ppm |
| NOx | 21 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments: GT#1
SIMPLE CYCLE
9.2 MW 61°F

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/22/2020 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 17:10 | |
| Recorded Test | | | 1717 | |
| O2 | | | 15.7 % | |
| CO | | | 0 PPM | |
| Eff | | | 70.1 % | |
| CO2 | | | 2.9 % | |
| T-Stk | | | 391 °F | |
| T-Air | | | 110.3 °F | |
| EA | | | 250 % | |
| CO (15) | | | 0 PPM | |
| NO | | | 12 PPM | |
| NO2 | | | 1 PPM | |
| NOX | | | 13 PPM | |
| SO2 | | | XXX | |
| NO (15) | | | 14 PPM | |
| NOX (15) | | | 15 PPM | |
| SO2 (15 | | | XXX | |
| Mega Watts | | | 8.2 | |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:17:22 PM
Date: 10/22/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 0 ppm |
| Eff | 70.1 % |
| $CO_2$ | 2.9 % |
| T-Stk | 391 °F |
| T-Air | 110.3 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12 ppm |
| $NO_2$ | 1 ppm |
| NOx | 13 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 15 ppm |
| $SO_2$ (15) | ***** ppm |

Comments:
NO DUCT #1 GT #2 & 8.2 MW

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/23/2020 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0550 | |
| Recorded Test | | | 0555 | |
| O2 | | | 15.7% | |
| CO | | | 0PPM | |
| Eff | | | 69.9% | |
| CO2 | | | 3% | |
| T-Stk | | | 382°F | |
| T-Air | | | 96.5°F | |
| EA | | | 250% | |
| CO (15) | | | 0PPM | |
| NO | | | 13PPM | |
| NO2 | | | 2PPM | |
| NOX | | | 15PPM | |
| SO2 | | | *** | |
| NO (15) | | | 15PPM | |
| NOX (15) | | | 17PPM | |
| SO2 (15 | | | *** | |
| Mega Watts | | | 8.9 MW | |
| KSCF/hour | | | | |

**Signature:** [signature]

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:55:46 AM
Date: 10/23/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.7 % |
| CO | 0 ppm |
| Eff | 69.9 % |
| $CO_2$ | 3.0 % |
| T-Stk | 382 °F |
| T-Air | 96.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 13 ppm |
| $NO_2$ | 2 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 17 ppm |
| $SO_2$ (15) | *** ppm |

Comments: GT#1 COMBINE CYCLE 8.9 MW

THEN PRINT TEST RESULTS AND THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/23/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 734 | |
| Recorded Test | | | 738 | |
| O2 | | | 15.8 % | |
| CO | | | 0 ppm | |
| Eff | | | 68.8 % | |
| CO2 | | | 2.9 % | |
| T-Stk | | | 397°F | |
| T-Air | | | 102.6°F | |
| EA | | | 250 | |
| CO (15) | | | 0 ppm | |
| NO | | | 12 ppm | |
| NO2 | | | 2 ppm | |
| NOX | | | 14 ppm | |
| SO2 | | | ~~XXX~~ | |
| NO (15) | | | 14 ppm | |
| NOX (15) | | | 16 ppm | |
| SO2 (15 | | | ~~XXX~~ | |
| Mega Watts | | | 8.2 | |
| KSCF/hour | | | | |

**Signature:** Daniel J. Shea

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

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BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:38:16 PM
Date: 10/23/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 68.8 % |
| $CO_2$ | 2.9 % |
| T-Stk | 397 °F |
| T-Air | 102.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12 ppm |
| $NO_2$ | 2 ppm |
| NOx | 14 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 16 ppm |
| $SO_2$(15) | **** ppm |

Comments MW = 8.2
OAT = 73°

T RESULTS

EST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/24/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0547 | |
| Recorded Test | | | 0552 | |
| O2 | | | 18.0 % | |
| CO | | | 0 PPM | |
| Eff | | | ---dP | |
| CO2 | | | --- % | |
| T-Stk | | | 533 °F | |
| T-Air | | | 85.8 °F | |
| EA | | | --- % | |
| CO (15) | | | --- PPM | |
| NO | | | 6 PPM | |
| NO2 | | | 1 PPM | |
| NOX | | | 7 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | --- PPM | |
| NOX (15) | | 21.7 | --- PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 8.66 | |
| KSCF/hour | | | | |

**Signature:** Kenneth W

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

GT #1

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:52:04 AM
Date: 10/24/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 18.0 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 533 °F |
| T-Air | 85.8 °F |
| EA | --- % |
| CO (15) | --- ppm |
| NO | 6 ppm |
| $NO_2$ | 1 ppm |
| NOx | 7 ppm |
| $SO_2$ | *** ppm |
| NO (15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx (15) | --- ppm 21.7 |
| $SO_2$ (15) | *** ppm |

Comments: 8.66 MW

ET

N PRINT TEST RESULTS

N PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/24/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | FT31 | |
| Recorded Test | | | FT34 | |
| O2 | | | 15.7 % | |
| CO | | | 0 ppm | |
| Eff | | | 72.5 % | |
| CO2 | | | 2.9 % | |
| T-Stk | | | 346° F | |
| T-Air | | | 98.1° F | |
| EA | | | 250.0 % | |
| CO (15) | | | 0 ppm | |
| NO | | | 12 ppm | |
| NO2 | | | 3 ppm | |
| NOX | | | 14 ppm | |
| SO2 | | | ~~***~~ | |
| NO (15) | | | 13 ppm | |
| NOX (15) | | | 16 ppm | |
| SO2 (15 | | | ~~***~~ | |
| Mega Watts | | | 84 | |
| KSCF/hour | | | | |

**Signature:** Daniel Shem

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

.....
.....
.....

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:34:44 PM
Date: 10/24/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.7 % |
| CO | 0 ppm |
| Eff | 72.5 % |
| $CO_2$ | 2.9 % |
| T-Stk | 346 °F |
| T-Air | 98.1 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12 ppm |
| $NO_2$ | 3 ppm |
| NOx | 14 ppm |
| $SO_2$ | ~~***~~ ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 16 ppm |
| $SO_2$ (15) | ~~***~~ ppm |

Comments: ~~MW=8.4~~
OAT = 70°

EEET

HEN PRINT TEST RESULTS

EN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/25/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0533 | |
| Recorded Test | | | 0537 | |
| O2 | | | 16.8% | |
| CO | | | 0 ppm | |
| Eff | | | -- % | |
| CO2 | | | --- % | |
| T-Stk | | | 562 °F | |
| T-Air | | | 95.8 °F | |
| EA | | | --- % | |
| CO (15) | | | --- ppm | |
| NO | | | 17 ppm | |
| NO2 | | | 2 ppm | |
| NOX | | | 18 ppm | |
| SO2 | | | *** ppm | |
| NO (15) | | | -- ppm | |
| NOX (15) | | | 25.9 ppm | |
| SO2 (15 | | | *** ppm | |
| Mega Watts | | | 8.51 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

GT 1

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:37:56 AM
Date: 10/25/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.8 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 562 °F |
| T-Air | 95.8 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 17 ppm |
| $NO_2$ | 2 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW: 8.51

25

PRINT TEST RESULTS

PRINT TEST RESULTS

ET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/25/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 1722 | |
| Recorded Test | | | 1725 | |
| O2 | | | 15.6 % | |
| CO | | | 0 ppm | |
| Eff | | | 69.3 % | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 380.0°F | |
| T-Air | | | 80.9°F | |
| EA | | | 250.0 % | |
| CO (15) | | | 0 ppm | |
| NO | | | 21 ppm | |
| NO2 | | | 4 ppm | |
| NOX | | | 24 ppm | |
| SO2 | | | *** | |
| NO (15) | | | 23 ppm | |
| NOX (15) | | | 27 ppm | |
| SO2 (15 | | | *** ppm | |
| Mega Watts | | | 9.54 MW | |
| KSCF/hour | | | | |

**Signature:** David J. Green

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:25:44 PM
Date: 10/25/20

Fuel NGAS #1 GT 9.54 MW

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 0 ppm |
| Eff | 69.3 % |
| $CO_2$ | 3.0 % |
| T-Stk | 380 °F |
| T-Air | 80.9 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 21 ppm |
| $NO_2$ | 4 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | *** ppm |

Comments:

EN PRINT TEST RESULTS N PRINT TEST RESULTS ET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/26/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0530 | |
| Recorded Test | | | 0534 | |
| O2 | | | 16.4% | |
| CO | | | 0 PPM | |
| Eff | | | --- % | |
| CO2 | | | --- % | |
| T-Stk | | | 585 °F | |
| T-Air | | | 76.0 °F | |
| EA | | | --- % | |
| CO (15) | | | --- PPM | |
| NO | | | 19 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 19 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | --- PPM | |
| NOX (15) | | | 21.5 PPM | |
| SO2 (15 | | | --- PPM | |
| Mega Watts | | | 9.4 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Wall

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, ~~INC.~~
PCA 3
SN: TP1006 GT 1

Time: 05:34:21 AM
Date: 10/26/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 16.4 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 585 °F |
| T-Air | 76.0 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 19 ppm |
| $NO_2$ | 0 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 9.4

MINUTES AND THEN PRINT TEST RESULTS

MINUTES AND THEN PRINT TEST RESULTS

ORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/26/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 1737 | |
| Recorded Test | | | 1740 | |
| O2 | | | 15.6 % | |
| CO | | | 0 ppm | |
| Eff | | | 68.1 % | |
| CO2 | | | 3.0 % | |
| T-Stk | | | 403 F | |
| T-Air | | | 91.6 °F | |
| EA | | | 250.0 % | |
| CO (15) | | | 0 ppm | |
| NO | | | 16 ppm | |
| NO2 | | | 2 ppm | |
| NOX | | | 18 ppm | |
| SO2 | | | ~~***~~ | |
| NO (15) | | | 18 ppm | |
| NOX (15) | | | 20 ppm | |
| SO2 (15 | | | ~~***~~ | |
| Mega Watts | | | 8.8 | |
| KSCF/hour | | | | |

**Signature:** Daniel J. Thuen

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:40:55 PM
Date: 10/26/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 0 ppm |
| Eff | 68.1 % |
| $CO_2$ | 3.0 % |
| T-Stk | 403 °F |
| T-Air | 91.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 2 ppm |
| NOx | 18 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | ***** ppm |

Comments: MW=8.8
OAT=62°

S SHEET
) THEN PRINT TEST RESULTS
ID THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 10/27/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0520 | |
| Recorded Test | | | 0524 | |
| O2 | | | 15.9 % | |
| CO | | | 0 ppm | |
| Eff | | | 51.8 % | |
| CO2 | | | 2.8 % | |
| T-Stk | | | 609 °F | |
| T-Air | | | 97.6 °F | |
| EA | | | 250.0 % | |
| CO (15) | | | 0 ppm | |
| NO | | | 16 ppm | |
| NO2 | | | 1 ppm | |
| NOX | | | 17 ppm | |
| SO2 | | | *** ppm | |
| NO (15) | | | 19 ppm | |
| NOX (15) | | | 20 ppm | |
| SO2 (15 | | | *** ppm | |
| Mega Watts | | | 8.99 | |
| KSCF/hour | | | | |

**Signature:** Kenneth Will

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC. GT#1
PCA 3
SN: TP1006

Time: 05:24:33 AM
Date: 10/27/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 51.8 % |
| $CO_2$ | 2.8 % |
| T-Stk | 609 °F |
| T-Air | 97.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 1 ppm |
| NOx | 17 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW- ~~9.01~~ 8,99

S AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

THIS SHEET

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 11/2/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | ~~1225~~ 1325 | ~~1218~~ 1318 | |
| Recorded Test | | ~~1230~~ 1330 | ~~1223~~ 1323 | |
| O2 | | 13.4% | 16.1% | |
| CO | | 4 ppm | 0 ppm | |
| Eff | | 75.4% | --- | |
| CO2 | | 4.2% | --- | |
| T-Stk | | 349 °F | 385°F | |
| T-Air | | 58.5 °F | 61.5°F | |
| EA | | 160.6% | --- | |
| CO (15) | | 3 ppm | --- | |
| NO | | 27 ppm | 21 ppm | |
| NO2 | | 4 ppm | 5 ppm | |
| NOX | | 31 ppm | 26 ppm | |
| SO2 | | *** ppm | *** ppm | |
| NO (15) | | 22 ppm | --- | |
| NOX (15) | | 24 ppm | 31.95 ppm | |
| SO2 (15 | | *** ppm | *** ppm | |
| Mega Watts | | 9.4 | 9.4 | |
| KSCF/hour | | 41 | | |

**Signature:** Evelyn Carter

| Date: 11/2/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | ~~1303~~ 1403 | | | |
| Recorded Test | ~~1318~~ 1418 | | | |
| O2 | 11.8% | | | |
| CO | 7 ppm | | | |
| Eff | 80.9% | | | |
| CO2 | 5.2% | | | |
| T-Stk | 293°F | | | |
| T-Air | 69.6°F | | | |
| EA | 114.7% | | | |
| CO (15) | 5 ppm | | | |
| NO | 31 ppm | | | |
| NO2 | 8 ppm | | | |
| NOX | 39 ppm | | | |
| SO2 | *** ppm | | | |
| NO (15) | 20 ppm | | | |
| NOX (15) | 25 ppm | | | |
| SO2 (15 | *** ppm | | | |
| K lbs/hour | 18 | | | |

**Signature:** Evelyn Carter

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

#1 GT
NO DUCT BURNER

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:23:16 PM
Date: 11/02/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.1 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-STK | 385 °F |
| T-AIR | 61.5 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 21 ppm |
| $NO_2$ | 5 ppm |
| NOx | 26 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.43 inwc

Comments: 44
9.4

#2 GT
WITH DUCT BURNER

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:30:20 PM
Date: 11/02/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.4 % |
| CO | 4 ppm |
| Eff | 75.4 % |
| $CO_2$ | 4.2 % |
| T-STK | 349 °F |
| T-AIR | 58.5 °F |
| EA | 160.6 % |
| CO(15) | 3 ppm |
| NO | 27 ppm |
| $NO_2$ | 4 ppm |
| NOx | 31 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.67 inwc

Comments:
41
9.4

BOILER #2

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 02:18:02 PM
Date: 11/02/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.8 % |
| CO | 7 ppm |
| Eff | 80.9 % |
| $CO_2$ | 5.2 % |
| T-STK | 293 °F |
| T-AIR | 69.6 °F |
| EA | 114.7 % |
| CO(15) | 5 ppm |
| NO | 31 ppm |
| $NO_2$ | 8 ppm |
| NOx | 39 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.94 inwc

Comments:
430
18,000

GT 1 GT #2 DB

## EMISSION TEST COLLEGE PARK ENEI

| Date: 11/09/2020 | GT 1 DB | GT 2 DB | GT1 |
|---|---|---|---|
| Start Test | | 1109 | 1103 |
| Recorded Test | | 1112 | 1107 |
| O2 | | 15.7 % | 16.6 % |
| CO | | 7 PPM | 0 PPM |
| Eff | | 77.2 % | -- % |
| CO2 | | 2.9 % | -- % |
| T-Stk | | 262 °F | 328 °F |
| T-Air | | 77.0 °F | 75.2 °F |
| EA | | 250.0 % | --- % |
| CO (15) | | 8 PPM | --- PPM |
| NO | | 13 PPM | 13 PPM |
| NO2 | | 4 PPM | 2 PPM |
| NOX | | 17 PPM | 15 PPM |
| SO2 | | *** PPM | *** PPM |
| NO (15) | | 15 PPM | --- PPM |
| NOX (15) | | 19 PPM | 20.5 PPM |
| SO2 (15 | | *** PPM | *** PPM |
| Mega Watts | | 8.6 | 8.6 |
| KSCF/hour | | 84 36 | |

**Signature:** Kenneth Wall

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:07:15 AM
Date: 11/09/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.6 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 328 °F |
| T-Air | 75.2 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 13 ppm |
| $NO_2$ | 2 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

HARACH, INC.
PCA 3
I: TP1006

2:25 AM
09/20

Fuel
NGAS

| |
|---|
| 15.7 % |
| 7 ppm |
| 77.2 % |
| 2.9 % |
| 262 °F |
| 77.0 °F |
| 250.0 % |
| 8 ppm |
| 13 ppm |
| 4 ppm |
| 17 ppm |
| *** ppm |
| 15 ppm |
| 5 ppm |
| 19 ppm |
| *** ppm |

Comments:

8.6 .6

| Date: | BLR 2 | BLR 4 | BLR 2 |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

**Signature:**

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENE

GT #7

#2

| Date: 11/16/20 | GT 1 DB | GT 2 DB | GT1 |
|---|---|---|---|
| Start Test | | 1644 | 1638 |
| Recorded Test | | 1647 | 1641 |
| O2 | | 15.8 % | 16.7 % |
| CO | | 7 PPM | 1 PPM |
| Eff | | 74.7 % | --- % |
| CO2 | | 2.9 % | --- % |
| T-Stk | | 290 °F | 318 °F |
| T-Air | | 73.7 °F | 74.5 °F |
| EA | | 250.0 % | --- % |
| CO (15) | | 8 PPM | --- PPM |
| NO | | 17 PPM | 15 PPM |
| NO2 | | 5 PPM | 3 PPM |
| NOX | | 22 PPM | 18 PPM |
| SO2 | | *** PPM | *** PPM |
| NO (15) | | 19 PPM | --- PPM |
| NOX (15) | | 15 PPM | 25 PPM |
| SO2 (15 | | *** PPM | *** PPM |
| Mega Watts | | 8.8 | 8.6 |
| KSCF/hour | | 28 | |

**Signature:** Kenneth Williams

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:41:37 PM
Date: 11/16/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.7 % |
| CO | 1 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 318 °F |
| T-Air | 74.5 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 15 ppm |
| $NO_2$ | 3 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$ (15) | *** ppm |

Comments:

mw: 8.6

BACHARACH

ACHARACH, INC.
PCA 3
SN: TP1006

:47:33 PM
/16/20

Fuel
NGAS

| | |
|---|---|
| | 15.8 % |
| | 7 ppm |
| | 74.7 % |
| | 2.9 % |
| | 290 °F |
| | 73.7 °F |
| | 250.0 % |
| | 8 ppm |
| | 17 ppm |
| | 5 ppm |
| | 22 ppm |
| | *** ppm |
| | 19 ppm |
| | 6 ppm |
| | 25 ppm |
| | *** ppm |

8.8

28

| Date: | BLR 2 | BLR 4 | BLR 2 | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

D THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

S SHEET

**Signature:**

## EMISSION TEST COLLEGE PARK ENER

| Date: | GT 1 DB | GT 2 DB | GT1 |
|---|---|---|---|
| Start Test | | 1051 | 1046 |
| Recorded Test | | 1054 | 1049 |
| O2 | | 14.7 % | 16.9 % |
| CO | | 4 PPM | 0 PPM |
| Eff | | 78.8 % | --- % |
| CO2 | | 3.5 % | --- % |
| T-Stk | | 252 °F | 290 °F |
| T-Air | | 60.6 °F | 69.4 °F |
| EA | | 213.1 % | --- % |
| CO (15) | | 4 PPM | --- PPM |
| NO | | 20 PPM | 14 PPM |
| NO2 | | 3 PPM | 3 PPM |
| NOX | | 23 PPM | 17 PPM |
| SO2 | | *** PPM | *** PPM |
| NO (15) | | 19 PPM | --- PPM |
| NOX (15) | | 22 PPM | 26 PPM |
| SO2 (15 | | *** PPM | *** PPM |
| Mega Watts | | 8.8 | 8.6 |
| KSCF/hour | | 40 | |

**Signature:** Kenneth Hall

| Date: | BLR 2 | BLR 4 | BLR 2 | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

GT#1

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:49:24 AM
Date: 11/23/20

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 16.9 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 290 °F |
| T-Air | 69.4 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 17 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Comments:
MW: 8.6

RINT TEST RESULTS

T#2 DB

BACHARACH

ACHARACH, INC.
PCA 3
SN: TP1006

0:54:28 AM
1/23/20

Fuel
NGAS

| | |
|---|---|
| | 14.7 % |
| | 4 ppm |
| | 78.8 % |
| | 3.5 % |
| | 252 °F |
| | 60.6 °F |
| | 213.1 % |
| | 4 ppm |
| | 20 ppm |
| | 3 ppm |
| | 23 ppm |
| | *** ppm |
| | 19 ppm |
| | 3 ppm |
| | 22 ppm |
| | *** ppm |

8.8
40

RINT TEST RESULTS

S SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 11/30/2020 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1840 | 1848 | |
| Recorded Test | | 1847 | 1850 | |
| O2 | | 14.1% | 16.6% | |
| CO | | 6ppm | 0ppm | |
| Eff | | 81.2% | — | |
| CO2 | | 3.8% | — | |
| T-Stk | | 238°F | 291°F | |
| T-Air | | 70.6°F | 70.7°F | |
| EA | | 185.9% | — | |
| CO (15) | | 5ppm | — | |
| NO | | 19ppm | 12ppm | |
| NO2 | | 4ppm | 3ppm | |
| NOX | | 23ppm | 15ppm | |
| SO2 | | *** | *** | |
| NO (15) | | 17ppm | — | |
| NOX (15) | | 20ppm | * 20.58ppm * | |
| SO2 (15 | | *** | — | |
| Mega Watts | | 8.76 | 8.45 | |
| KSCF/hour | | 42 KSCFH | | |

NOX15 was calculated due to $O_2$ NOT BEING BELOW 16%.

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:47:55 PM
Date: 11/30/20

GT#2
8.76MW

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.1 % |
| CO | 6 ppm |
| Eff | 81.2 % |
| $CO_2$ | 3.8 % |
| T-Stk | 238 °F |
| T-Air | 70.6 °F |
| EA | 185.9 % |
| CO(15) | 5 ppm |
| NO | 19 ppm |
| $NO_2$ | 4 ppm |
| NOx | 23 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:50:59 PM
Date: 11/30/20

GT#1

Fuel
NGAS

8.45 MW

| | |
|---|---|
| $O_2$ | 16.6 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 291 °F |
| T-Air | 70.7 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 12 ppm |
| $NO_2$ | 3 ppm |
| NOx | 15 ppm |
| $SO_2$ | **** ppm |
| NO(15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$ (15) | **** ppm |

Comments: NOx 15 = 20.58 ppm

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:54:50 AM GT7DB
Date: 12/07/20

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.0 % |
| CO | 10 ppm |
| Eff | 76.2 % |
| $CO_2$ | 4.5 % |
| T-Stk | 344 °F |
| T-Air | 53.1 °F |
| EA | 146.2 % |
| CO(15) | 7 ppm |
| NO | 27 ppm |
| $NO_2$ | 5 ppm |
| NOx | 32 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | ***** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:16:37 PM
Date: 12/07/20 BLR 3

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.2 % |
| CO | 18 ppm |
| Eff | 81.6 % |
| $CO_2$ | 10.0 % |
| T-Stk | 419 °F |
| T-Air | 60.8 °F |
| EA | 16.0 % |
| CO(15) | 6 ppm |
| NO | 62 ppm |
| $NO_2$ | 1 ppm |
| NOx | 64 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | ***** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/07/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 11:49 | | |
| Recorded Test | | 11:54 | | |
| O2 | | 13% | | |
| CO | | 10 ppm | | |
| Eff | | 76.7% | | |
| CO2 | | 4.5% | | |
| T-Stk | | 344°F | | |
| T-Air | | 53.1°F | | |
| EA | | 146.7% | | |
| CO (15) | | 7 ppm | | |
| NO | | 27 ppm | | |
| NO2 | | 5 ppm | | |
| NOX | | 32 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 20 ppm | | |
| NOX (15) | | 24 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 10 | | |
| KSCF/hour | | 59 | | |

**Signature:**

| Date: 12/07/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1200 | | | |
| Recorded Test | 1216 | | | |
| O2 | 3.2% | | | |
| CO | 18 ppm | | | |
| Eff | 81.6% | | | |
| CO2 | 10.0% | | | |
| T-Stk | 419°F | | | |
| T-Air | 60.8°F | | | |
| EA | 16.0% | | | |
| CO (15) | 6 ppm | | | |
| NO | 67 ppm | | | |
| NO2 | 1 ppm | | | |
| NOX | 64 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 21 ppm | | | |
| NOX (15) | 21 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 74 | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/14/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1931 | 1934 | | |
| Recorded Test | 1934 | 1936 | | |
| O2 | 15.7% | 15.5% | | |
| CO | 2ppm | 5ppm | | |
| Eff | 77.2% | 78.5% | | |
| CO2 | 3.0% | 3.1% | | |
| T-Stk | 257°F | 244°F | | |
| T-Air | 70.7°F | 68.9°F | | |
| EA | 250% | 250% | | |
| CO (15) | 3ppm | 6ppm | | |
| NO | 19ppm | 18ppm | | |
| NO2 | 2ppm | 4ppm | | |
| NOX | 22ppm | 22ppm | | |
| SO2 | * * * | * * * | | |
| NO (15) | 22ppm | 20ppm | | |
| NOX (15) | 24ppm | 23ppm | | |
| SO2 (15 | * * * | * * * | | |
| Mega Watts | 9.35MW | 9.78MW | | |
| KSCF/hour | 21 | 31 | | |

**Signature:**

| Date: 12/14/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test ~~1914~~ | 1914 | | | |
| Recorded Test ~~1930~~ | 1930 | | | |
| O2 | 8.5% | | | |
| CO | 1ppm | | | |
| Eff | 81.3% | | | |
| CO2 | 7.0% | | | |
| T-Stk | 350°F | | | |
| T-Air | 70.9°F | | | |
| EA | 60.8% | | | |
| CO (15) | 0ppm | | | |
| NO | 41ppm | | | |
| NO2 | 1ppm | | | |
| NOX | 42ppm | | | |
| SO2 | * * * | | | |
| NO (15) | 20ppm | | | |
| NOX (15) | 21ppm | | | |
| SO2 (15 | * * * | | | |
| K lbs/hour | 44 | | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:34:40 PM
Date: 12/14/20

GT#1 9.8MW 9.35

Fuel NGAS

| | |
|---|---|
| $O_2$: | 15.7 % |
| CO | 2 ppm |
| Eff | 77.2 % |
| $CO_2$ | 3.0 % |
| T-Stk | 257 °F |
| T-Air | 70.7 °F |
| EA | 250.0 % |
| CO(15) | 3 ppm |
| NO | 19 ppm |
| $NO_2$ | 2 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:36:20 PM
Date: 12/14/20

GT#2 9.78MW

Fuel NGAS

| | |
|---|---|
| $O_2$: | 15.5 % |
| CO | 5 ppm |
| Eff | 78.5 % |
| $CO_2$ | 3.1 % |
| T-Stk | 244 °F |
| T-Air | 68.9 °F |
| EA | 250.0 % |
| CO(15) | 6 ppm |
| NO | 18 ppm |
| $NO_2$ | 4 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:30:50 PM
Date: 12/14/20

BOILER 2 40KPPH

Fuel NGAS 900ACFM

| | |
|---|---|
| $O_2$: | 8.5 % |
| CO | 1 ppm |
| Eff | 81.3 % |
| $CO_2$ | 7.0 % |
| T-Stk | 350 °F |
| T-Air | 70.9 °F |
| EA | 60.8 % |
| CO(15) | 0 ppm |
| NO | 41 ppm |
| $NO_2$ | 1 ppm |
| NOx | 42 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/21/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1013 | 1020 | | |
| Recorded Test | 1020 | 1024 | | |
| O2 | 15.6% | 15.1% | | |
| CO | 3ppm | 4ppm | | |
| Eff | 74.1% | 75.7% | | |
| CO2 | 3.0% | 3.3% | | |
| T-Stk | 303°F | 294°F | | |
| T-Air | 70.7°F | 68°F | | |
| EA | 250% | 233.2% | | |
| CO (15) | 3ppm | 5ppm | | |
| NO | 16ppm | 19ppm | | |
| NO2 | 2ppm | 3ppm | | |
| NOX | 18ppm | 22ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 17ppm | 20ppm | | |
| NOX (15) | 20ppm | 23ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.7 MW | 8.3 MW | | |
| KSCF/hour | 21 KSCFH | 22KSCFH | | |

**Signature:** DARIO DE LEON

| Date: 12/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0955 | | | |
| Recorded Test | 1011 | | | |
| O2 | 9.9% | | | |
| CO | 0ppm | | | |
| Eff | 81.6% | | | |
| CO2 | 6.2% | | | |
| T-Stk | 319°F | | | |
| T-Air | 74.2°F | | | |
| EA | 79.5% | | | |
| CO (15) | 0ppm | | | |
| NO | 44ppm | | | |
| NO2 | 0ppm | | | |
| NOX | 45ppm | | | |
| SO2 | *** | | | |
| NO (15) | 24ppm | | | |
| NOX (15) | 24ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 33KPPH | | | |

**Signature:** DARIO DE LEON

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:24:06 AM
Date: 12/21/20

GT#2 W/DB

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.1 % |
| CO | 4 ppm |
| Eff | 75.7 % |
| $CO_2$ | 3.3 % |
| T-Stk | 294 °F |
| T-Air | 68.0 °F |
| EA | 233.2 % |
| CO(15) | 5 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | **** ppm |

Comments: 8.3 MW
22 KSCFH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:20:28 AM
Date: 12/21/20

GT#1 W/DB

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 3 ppm |
| Eff | 74.1 % |
| $CO_2$ | 3.0 % |
| T-Stk | 303 °F |
| T-Air | 70.7 °F |
| EA | 250.0 % |
| CO(15) | 3 ppm |
| NO | 16 ppm |
| $NO_2$ | 2 ppm |
| NOx | 18 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Comments: 9.7 MW

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:11:38 AM
Date: 12/21/20

BOILER #2

Fuel NGAS

| | |
|---|---|
| $O_2$ | 9.9 % |
| CO | 0 ppm |
| Eff | 81.6 % |
| $CO_2$ | 6.2 % |
| T-Stk | 319 °F |
| T-Air | 74.2 °F |
| EA | 79.5 % |
| CO(15) | 0 ppm |
| NO | 44 ppm |
| $NO_2$ | 0 ppm |
| NOx | 45 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 24 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | **** ppm |

Comments:
33 KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/28/20 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1245 | 1249 | | |
| Recorded Test | 1248 | 1252 | | |
| O2 | 16.8 % | 15.3 % | | |
| CO | 5 PPM | 2 PPM | | |
| Eff | --- PPM% | 76.7 % | | |
| CO2 | --- PPM% | 3.2 % | | |
| T-Stk | 284 °F | 272 °F | | |
| T-Air | 68.2 °F | 66.8 °F | | |
| EA | --- % | 243.8 % | | |
| CO (15) | ---PPM | 2 PPM | | |
| NO | 13 PPM | 18 PPM | | |
| NO2 | 3 PPM | 2 PPM | | |
| NOX | 15 PPM | 20 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | --- PPM | 19 PPM | | |
| NOX (15) | 21.58 PPM | 21 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| Mega Watts | 7.1 | 8.14 | | |
| KSCF/hour | 9 | 50 | | |

**Signature:** Kenneth Wall

| Date: 12/28/20 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1306 | | | |
| Recorded Test | 1321 | | | |
| O2 | 8.3 % | | | |
| CO | 0 PPM | | | |
| Eff | 81.3 % | | | |
| CO2 | 7.1 % | | | |
| T-Stk | 354 °F | | | |
| T-Air | 71.8 °F | | | |
| EA | 58.1 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 44 PPM | | | |
| NO2 | 1 PPM | | | |
| NOX | 45 PPM | | | |
| SO2 | *** PPM | | | |
| NO (15) | 21 PPM | | | |
| NOX (15) | 21 PPM | | | |
| SO2 (15 | *** PPM | | | |
| K lbs/hour | 44 | | | |

**Signature:** Kenneth Wall

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BLR 2

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 01:21:00 PM
Date: 12/28/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.3 % |
| CO | 0 ppm |
| Eff | 81.3 % |
| $CO_2$ | 7.1 % |
| T-Stk | 354 °F |
| T-Air | 71.8 °F |
| EA | 58.1 % |
| CO(15) | 0 ppm |
| NO | 44 ppm |
| $NO_2$ | 1 ppm |
| NOx | 45 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | *** ppm |

Comments:

Klbs/hr : 44

GT #2 DB

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:52:21 PM
Date: 12/28/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.3 % |
| CO | 2 ppm |
| Eff | 76.7 % |
| $CO_2$ | 3.2 % |
| T-Stk | 272 °F |
| T-Air | 66.8 °F |
| EA | 243.8 % |
| CO(15) | 2 ppm |
| NO | 18 ppm |
| $NO_2$ | 2 ppm |
| NOx | 20 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW: 28.4

GT #1 DB

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:48:46 PM
Date: 12/28/20

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.8 % |
| CO | 5 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 284 °F |
| T-Air | 68.2 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 13 ppm |
| $NO_2$ | 3 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW : 7.85

$$\frac{20.9-15}{20.9-16.8} \times NOx$$

GT#1 (NOx)$_{15}$ $= \frac{5.9}{4.1} \times 15$

$= 21.58$ PPM

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

April 22, 2021

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Director:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of January 1, 2021 through March 31, 2021.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility January 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 744.00 | 0.00 | 93330.12 | 0.00 | | 285,450,000 | 0 | 298,566 | 0 | 0.0467 | 0.0000 | 0.0467 | 5.6465 | 0.0000 | 5.6465 | 0.1400 | 0.0000 | 0.1400 | 0.2800 | 0.0000 | 0.2800 | 0.2287 | 0.0000 | 0.2287 | 0.2287 | 0.0000 | 0.2287 |
| Turbine 2 | 744.00 | 0.00 | 87525.10 | 0.00 | | 846,770,000 | 0 | 885,679 | 0 | 0.0875 | 0.0000 | 0.0875 | 5.6454 | 0.0000 | 5.6454 | 0.6127 | 0.0000 | 0.6127 | 0.2626 | 0.0000 | 0.2626 | 0.1575 | 0.0000 | 0.1575 | 0.1575 | 0.0000 | 0.1575 |
| Duct Burner 1 | 744.00 | | 12593.24 | | | 18,710,000 | | 19,570 | | 0.0340 | | 0.0340 | 0.0819 | | 0.0819 | 0.0630 | | 0.0630 | 0.0037 | | 0.0037 | 0.0124 | | 0.0124 | 0.0124 | | 0.0124 |
| Duct Burner 2 | 744.00 | | 27895.49 | | | 287,791,000 | | 301,015 | | 0.0752 | | 0.0752 | 0.1813 | | 0.1813 | 0.1395 | | 0.1395 | 0.0082 | | 0.0082 | 0.0274 | | 0.0274 | 0.0274 | | 0.0274 |
| Boiler 2 | 729.30 | 0.00 | 44118.17 | 0.00 | | | | | | 0.0052 | 0.0000 | 0.0052 | 2.2423 | 0.0000 | 2.2423 | 0.0122 | 0.0000 | 0.0122 | 0.0130 | 0.0000 | 0.0130 | 0.1981 | 0.0000 | 0.1981 | 0.1981 | 0.0000 | 0.1981 |
| Boiler 4 | 38.90 | 2.50 | 684.05 | 69.56 | | | | | | 0.0001 | 0.0000 | 0.0002 | 0.0350 | 0.0045 | 0.0396 | 0.0007 | 0.0011 | 0.0018 | 0.0002 | 0.0015 | 0.0017 | 0.0021 | 0.0024 | 0.0045 | 0.0021 | 0.0024 | 0.0045 |
| Emerg. Gen. | | 0.50 | | 3.88 | 0.5 | | | | | | 0.0002 | 0.0002 | | 0.0062 | 0.0062 | | 0.0016 | 0.0016 | | 0.0000 | 0.0000 | | 0.0001 | 0.0001 | | 0.0001 | 0.0001 |
| Mobile Boiler | 43.90 | 0.00 | 0.29 | 0.00 | | | | | | 0.0006 | 0.0000 | 0.0006 | 0.0055 | 0.0000 | 0.0055 | 0.0057 | 0.0000 | 0.0057 | 0.0001 | 0.0000 | 0.0001 | 0.0016 | 0.0000 | 0.0016 | 0.0016 | 0.0000 | 0.0016 |
| Emissions Total | | | | | | | | | | 0.2493 | 0.0002 | 0.2496 | 13.8378 | 0.0108 | 13.8486 | 0.9738 | 0.0027 | 0.9765 | 0.5677 | 0.0015 | 0.5692 | 0.6277 | 0.0025 | 0.6302 | 0.6277 | 0.0025 | 0.6302 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 2.15 | 101.11 | 10.31 | 4.11 | 5.42 | 5.42 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility February 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 672.00 | 0.00 | 67934.45 | 0.00 | | 350,400,000 | 0 | 366,501 | 0 | 0.0340 | 0.0000 | 0.0340 | 4.1100 | 0.0000 | 4.1100 | 0.1019 | 0.0000 | 0.1019 | 0.2038 | 0.0000 | 0.2038 | 0.1664 | 0.0000 | 0.1664 | 0.1664 | 0.0000 | 0.1664 |
| Turbine 2 | 672.00 | 0.00 | 79126.12 | 0.00 | | 846,802,000 | 0 | 885,713 | 0 | 0.0791 | 0.0000 | 0.0791 | 5.1036 | 0.0000 | 5.1036 | 0.5539 | 0.0000 | 0.5539 | 0.2374 | 0.0000 | 0.2374 | 0.1424 | 0.0000 | 0.1424 | 0.1424 | 0.0000 | 0.1424 |
| Duct Burner 1 | 671.70 | | 13053.46 | | | 31,190,000 | | 32,623 | | 0.0352 | | 0.0352 | 0.0848 | | 0.0848 | 0.0653 | | 0.0653 | 0.0038 | | 0.0038 | 0.0128 | | 0.0128 | 0.0128 | | 0.0128 |
| Duct Burner 2 | 671.80 | | 27717.68 | | | 285,331,000 | | 298,442 | | 0.0747 | | 0.0747 | 0.1802 | | 0.1802 | 0.1386 | | 0.1386 | 0.0082 | | 0.0082 | 0.0272 | | 0.0272 | 0.0272 | | 0.0272 |
| Boiler 2 | 481.10 | 0.00 | 29607.71 | 0.00 | | | | | | 0.0035 | 0.0000 | 0.0035 | 1.5048 | 0.0000 | 1.5048 | 0.0082 | 0.0000 | 0.0082 | 0.0087 | 0.0000 | 0.0087 | 0.1329 | 0.0000 | 0.1329 | 0.1329 | 0.0000 | 0.1329 |
| Boiler 4 | 145.50 | 0.00 | 5547.72 | 0.00 | | | | | | 0.0012 | 0.0000 | 0.0012 | 0.2842 | 0.0000 | 0.2842 | 0.0060 | 0.0000 | 0.0060 | 0.0016 | 0.0000 | 0.0016 | 0.0167 | 0.0000 | 0.0167 | 0.0167 | 0.0000 | 0.0167 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 32.00 | 0.00 | 0.12 | 0.00 | | | | | | 0.0002 | 0.0000 | 0.0002 | 0.0022 | 0.0000 | 0.0022 | 0.0023 | 0.0000 | 0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.0007 | 0.0000 | 0.0007 | 0.0007 | 0.0000 | 0.0007 |
| Emissions Total | | | | | | | | | | 0.2280 | 0.0000 | 0.2280 | 11.2699 | 0.0000 | 11.2699 | 0.8761 | 0.0000 | 0.8761 | 0.4636 | 0.0000 | 0.4636 | 0.4992 | 0.0000 | 0.4992 | 0.4992 | 0.0000 | 0.4992 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.19 | 104.43 | 10.28 | 4.32 | 5.48 | 5.48 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility March 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 736.40 | 0.00 | 90893.06 | 0.00 | | 437,300,000 | 0 | 457,394 | 0 | 0.0454 | 0.0000 | 0.0454 | 5.4990 | 0.0000 | 5.4990 | 0.1363 | 0.0000 | 0.1363 | 0.2727 | 0.0000 | 0.2727 | 0.2227 | 0.0000 | 0.2227 | 0.2227 | 0.0000 | 0.2227 |
| Turbine 2 | 735.70 | 0.00 | 92085.44 | 0.00 | | 849,302,000 | 0 | 888,327 | 0 | 0.0921 | 0.0000 | 0.0921 | 5.9395 | 0.0000 | 5.9395 | 0.6446 | 0.0000 | 0.6446 | 0.2763 | 0.0000 | 0.2763 | 0.1658 | 0.0000 | 0.1658 | 0.1658 | 0.0000 | 0.1658 |
| Duct Burner 1 | 664.50 | | 8137.49 | | | 38,970,000 | | 40,761 | | 0.0219 | | 0.0219 | 0.0529 | | 0.0529 | 0.0407 | | 0.0407 | 0.0024 | | 0.0024 | 0.0080 | | 0.0080 | 0.0080 | | 0.0080 |
| Duct Burner 2 | 581.10 | | 18952.61 | | | 259,201,000 | | 271,111 | | 0.0511 | | 0.0511 | 0.1232 | | 0.1232 | 0.0948 | | 0.0948 | 0.0056 | | 0.0056 | 0.0186 | | 0.0186 | 0.0186 | | 0.0186 |
| Boiler 2 | 250.30 | 0.00 | 9496.18 | 0.00 | | | | | | 0.0011 | 0.0000 | 0.0011 | 0.4826 | 0.0000 | 0.4826 | 0.0026 | 0.0000 | 0.0026 | 0.0028 | 0.0000 | 0.0028 | 0.0426 | 0.0000 | 0.0426 | 0.0426 | 0.0000 | 0.0426 |
| Boiler 4 | 45.90 | 0.00 | 848.27 | 0.00 | | | | | | 0.0002 | 0.0000 | 0.0002 | 0.0435 | 0.0000 | 0.0435 | 0.0009 | 0.0000 | 0.0009 | 0.0002 | 0.0000 | 0.0002 | 0.0026 | 0.0000 | 0.0026 | 0.0026 | 0.0000 | 0.0026 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 37.10 | 0.00 | 0.16 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0030 | 0.0000 | 0.0030 | 0.0031 | 0.0000 | 0.0031 | 0.0000 | 0.0000 | 0.0000 | 0.0009 | 0.0000 | 0.0009 | 0.0009 | 0.0000 | 0.0009 |
| Emissions Total | | | | | | | | | | 0.2122 | 0.0000 | 0.2122 | 12.1437 | 0.0000 | 12.1437 | 0.9230 | 0.0000 | 0.9230 | 0.5600 | 0.0000 | 0.5600 | 0.4611 | 0.0000 | 0.4611 | 0.4611 | 0.0000 | 0.4611 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.08 | 109.54 | 9.37 | 4.58 | 5.46 | 5.46 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE

| Date: 1/4/2021 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1214 | 1219 |
| Recorded Test | 1217 | 1222 |
| O2 | 16.4 % | 15.6 % |
| CO | 4 PPM | 4 PPM |
| Eff | --- % | 73.9 % |
| CO2 | --- % | 3.0 % |
| T-Stk | 294 °F | 293 °F |
| T-Air | 64.8 °F | 60.8 °F |
| EA | --- % | 250.0 % |
| CO (15) | --- PPM | 5 PPM |
| NO | 13 PPM | 15 PPM |
| NO2 | 2 PPM | 3 PPM |
| NOX | 15 PPM | 18 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | --- PPM | 17 PPM |
| NOX (15) | 19.6 PPM | 20 PPM |
| SO2 (15 | *** PPM | *** PPM |
| Mega Watts | 8.2 | 8.5 |
| KSCF/hour | 16 | 36 |

**Signature:** Kenneth Wall

| Date: 1/4/2021 | BLR 2 | BLR 4 | BLR 2 |
|---|---|---|---|
| Start Test | 1225 | | |
| Recorded Test | 1240 | | |
| O2 | 9.5 % | | |
| CO | 1 PPM | | |
| Eff | 80.3 % | | |
| CO2 | 6.4 % | | |
| T-Stk | 355 °F | | |
| T-Air | 70.5 °F | | |
| EA | 74.8 % | | |
| CO (15) | 1 PPM | | |
| NO | 38 PPM | | |
| NO2 | 1 PPM | | |
| NOX | 39 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 20 PPM | | |
| NOX (15) | 20 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 45 | | |

**Signature:** Kenneth Wall

Time: 12:~~47:00~~ PM
Date: 01/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.4 % |
| CO | 4 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 294 °F |
| T-Air | 64.8 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 13 ppm |
| $NO_2$ | 2 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx(15) | < ppm 19.6 |
| $SO_2$ (15) | *** ppm |

Comments:
MW: 8.2
KSCF/hr: 16

Time: 12:22:24 PM
Date: 01/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 4 ppm |
| Eff | 73.9 % |
| $CO_2$ | 3.0 % |
| T-Stk | 293 °F |
| T-Air | 60.8 °F |
| EA | 250.0 % |
| CO(15) | 5 ppm |
| NO | 15 ppm |
| $NO_2$ | 3 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
MW: 8.5
KSCF/hr 36

BACHARACH, INC.
PGA 3
SN: TP1006

Time: 12:40:50 PM
Date: 01/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.5 % |
| CO | 1 ppm |
| Eff | 80.3 % |
| $CO_2$ | 6.4 % |
| T-Stk | 355 °F |
| T-Air | 70.5 °F |
| EA | 74.8 % |
| CO(15) | 1 ppm |
| NO | 38 ppm |
| $NO_2$ | 1 ppm |
| NOx | 39 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | *** ppm |

Comments:
Klbs/hr: 45

WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE

| Date: 1/11/21 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0924 | 0930 |
| Recorded Test | 0927 | 0934 |
| O2 | 14.9 % | 14.4 % |
| CO | 5 PPM | 5 PPM |
| Eff | 74.4 % | 76.3 % |
| CO2 | 3.4 % | 3.7 % |
| T-Stk | 314 °F | 298 °F |
| T-Air | 60.7 °F | 55.2 °F |
| EA | 222.2 % | 197.0 % |
| CO (15) | 5 PPM | 4 PPM |
| NO | 15 PPM | 18 PPM |
| NO2 | 3 PPM | 3 PPM |
| NOX | 19 PPM | 22 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | 15 PPM | 16 PPM |
| NOX (15) | 18 PPM | 20 PPM |
| SO2 (15 | *** PPM | *** PPM |
| Mega Watts | 8.5 | 8.7 |
| KSCF/hour | 18 | 31 |

Time: 09:27:08 AM
Date: 01/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.9 % |
| CO | 5 ppm |
| Eff | 74.4 % |
| $CO_2$ | 3.4 % |
| T-Stk | 314 °F |
| T-Air | 60.7 °F |
| EA | 222.2 % |
| CO(15) | 5 ppm |
| NO | 15 ppm |
| $NO_2$ | 3 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 18 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW 8.5
18

Date: 01/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.4 % |
| CO | 5 ppm |
| Eff | 76.3 % |
| $CO_2$ | 3.7 % |
| T-Stk | 298 °F |
| T-Air | 55.2 °F |
| EA | 197.0 % |
| CO(15) | 4 ppm |
| NO | 18 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 8.7
31

**Signature:** Ken Williams

| Date: 1/11/21 | BLR 2 | BLR 4 | BLR 2 |
|---|---|---|---|
| Start Test | 0930 | | |
| Recorded Test | 0945 | | |
| O2 | 8.4 % | | |
| CO | 5 PPM | | |
| Eff | 78.8 % | | |
| CO2 | 7.1 % | | |
| T-Stk | 410 °F | | |
| T-Air | 58.1 °F | | |
| EA | 59.9 % | | |
| CO (15) | 2 PPM | | |
| NO | 42 PPM | | |
| NO2 | 2 PPM | | |
| NOX | 43 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 20 PPM | | |
| NOX (15) | 20 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 72 | | |

Time: 09:45:31 AM
Date: 01/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 8.4 % |
| CO | 5 ppm |
| Eff | 78.8 % |
| $CO_2$ | 7.1 % |
| T-Stk | 410 °F |
| T-Air | 58.1 °F |
| EA | 59.9 % |
| CO(15) | 2 ppm |
| NO | 42 ppm |
| $NO_2$ | 2 ppm |
| NOx | 43 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

72

**Signature:** Ken Williams

ATTACH FORM TO THIS SHEET

CP42182

**EMISSION TEST COLLEGE**

| Date: 01/18/21 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0957 | 1003 |
| Recorded Test | 1000 | 1006 |
| O2 | 16.9 % | 15.5 % |
| CO | 6 PPM | 4 PPM |
| Eff | -- % | 74.5 % |
| CO2 | -- % | 3.1 % |
| T-Stk | 310 °F | 292 °F |
| T-Air | 64.5 °F | 60.9 °F |
| EA | --- % | 250.0 % |
| CO (15) | --- PPM | 4 PPM |
| NO | 11 PPM | 18 PPM |
| NO2 | 3 PPM | 2 PPM |
| NOX | 14 PPM | 20 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | --- PPM | 19 PPM |
| NOX (15) | 20.6 PPM | 22 PPM |
| SO2 (15 | *** PPM | *** PPM |
| Mega Watts | 8.2 | 8.8 |
| KSCF/hour | 13 | 27 |

**Signature:** Ken Williams

Time: 10:00:13 AM
Date: 01/18/21

GT 1 DB Fuel NGAS

| | |
|---|---|
| $O_2$: | 16.9 % |
| CO | 6 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 310 °F |
| T-Air | 64.5 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 11 ppm |
| $NO_2$ | 3 ppm |
| NOx | 14 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$ (15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 8.2
KSCF/hr: 13

Time: 10:08:01 AM
Date: 01/18/21

GT2 DB Fuel NGAS

| | |
|---|---|
| $O_2$: | 15.5 % |
| CO | 4 ppm |
| Eff | 74.5 % |
| $CO_2$ | 3.1 % |
| T-Stk | 292 °F |
| T-Air | 60.9 °F |
| EA | 250.0 % |
| CO(15) | 4 ppm |
| NO | 18 ppm |
| $NO_2$ | 2 ppm |
| NOx | 20 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 8.8
KSCF/hr: 13

| Date: 01/18/21 | BLR 2 | BLR 4 | |
|---|---|---|---|
| Start Test | 1017 | | |
| Recorded Test | 1032 | | |
| O2 | 9.7 % | | |
| CO | 0 PPM | | |
| Eff | 81.1 % | | |
| CO2 | 6.3 % | | |
| T-Stk | 331 °F | | |
| T-Air | 68.4 °F | | |
| EA | 76.5 % | | |
| CO (15) | 0 PPM | | |
| NO | 45 PPM | | |
| NO2 | 1 PPM | | |
| NOX | 46 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 24 PPM | | |
| NOX (15) | 24 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 34 | | |

**Signature:** Ken Williams

Time: 10:32:48 AM
Date: 01/18/21

Fuel NGAS

| | |
|---|---|
| $O_2$: | 9.7 % |
| CO | 0 ppm |
| Eff | 81.1 % |
| $CO_2$ | 6.3 % |
| T-Stk | 331 °F |
| T-Air | 68.4 °F |
| EA | 76.5 % |
| CO(15) | 0 ppm |
| NO | 45 ppm |
| $NO_2$ | 1 ppm |
| NOx | 46 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 24 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 24 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr: 34

ATTACH FORM TO THIS SHEET

IT 3-5 MINUTES AND THEN PRINT TEST RESULTS

UNDER PURGE (Start) WAIT

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:44:20 PM
Date: 01/25/21 BLR7

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.4 % |
| CO | 0 ppm |
| Eff | 84.0 % |
| $CO_2$ | 9.3 % |
| T-STK | 322 °F |
| T-AIR | 71.5 °F |
| EA | 23.4 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 2 ppm |
| NOx | 65 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.53 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:24:59 PM
Date: 01/25/21 GT7 DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.5 % |
| CO | 4 ppm |
| Eff | 71.4 % |
| $CO_2$ | 3.6 % |
| T-STK | 376 °F |
| T-AIR | 55.8 °F |
| EA | 199.9 % |
| CO(15) | 3 ppm |
| NO | 20 ppm |
| $NO_2$ | 4 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.49 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:18:04 PM
Date: 01/25/21 GT1 DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.2 % |
| CO | 3 ppm |
| Eff | 72.9 % |
| $CO_2$ | 3.8 % |
| T-STK | 364 °F |
| T-AIR | 58.2 °F |
| EA | 188.2 % |
| CO(15) | 3 ppm |
| NO | 25 ppm |
| $NO_2$ | 6 ppm |
| NOx | 30 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.38 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 01/25/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 12:13 | 12:19 | | |
| Recorded Test | 12:18 | 12:24 | | |
| O2 | 14.7% | 14.5% | | |
| CO | 3ppm | 4ppm | | |
| Eff | 72.9% | 71.4% | | |
| CO2 | 3.8% | 3.6% | | |
| T-Stk | 364°F | 376°F | | |
| T-Air | 58.7°F | 55.8°F | | |
| EA | 108.7% | 109.9% | | |
| CO (15) | 3ppm | 3ppm | | |
| NO | 25ppm | 20ppm | | |
| NO2 | 6ppm | 4ppm | | |
| NOX | 30ppm | 25ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 22ppm | 19ppm | | |
| NOX (15) | 27ppm | 23ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.6 MW | 9.6 MW | | |
| KSCF/hour | 38 KSCFH | 32 KSCFH | | |

**Signature:** Justin Bisset

| Date: 01/25/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1239 | | | |
| Recorded Test | 1244 | | | |
| O2 | 4.4% | | | |
| CO | 0ppm | | | |
| Eff | 84.0% | | | |
| CO2 | 9.3% | | | |
| T-Stk | 327°F | | | |
| T-Air | 71.5°F | | | |
| EA | 23.4% | | | |
| CO (15) | 0 ppm | | | |
| NO | 64 ppm | | | |
| NO2 | 2 ppm | | | |
| NOX | 65 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 33 ppm | | | |
| NOX (15) | 33 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 38 KPPH | | | |

**Signature:** Justin Bisset

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

| Date: 1/28/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | i | 1105 | | |
| Recorded Test | | 1121 | | |
| O2 | | 11.6% | | |
| CO | | 0 ppm | | |
| Eff | | 77.3% | | |
| CO2 | | 5.3% | | |
| T-Stk | | 374°F | | |
| T-Air | | 64.3°F | | |
| EA | | 110.8% | | |
| CO (15) | | 0 ppm | | |
| NO | | 37 ppm | | |
| NO2 | | 0 ppm | | |
| NOX | | 38 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 23 ppm | | |
| NOX (15) | | 24 ppm | | |
| SO2 (15 | | *** | | |
| K lbs/hour | | 12 | | |

**Signature:**

#4 Boiler

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:21:55 AM
Date: 01/28/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.6 % |
| CO | 0 ppm |
| Eff | 77.3 % |
| $CO_2$ | 5.3 % |
| T-STK | 374 °F |
| T-AIR | 64.3 °F |
| EA | 110.8 % |
| CO(15) | 0 ppm |
| NO | 37 ppm |
| $NO_2$ | 0 ppm |
| NOx | 38 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.22 inwc

Comments:

12 Kpph

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 07/01/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1343 | 1351 | | |
| Recorded Test | 1348 | 1356 | | |
| O2 | 14.0% | 14.1% | | |
| CO | 2ppm | 3ppm | | |
| Eff | 72.4% | 71.9% | | |
| CO2 | 3.9% | 3.8% | | |
| T-Stk | 371°F | 371°F | | |
| T-Air | 47.2°F | 48.9°F | | |
| EA | 179.8% | 184.9% | | |
| CO (15) | 2ppm | 3ppm | | |
| NO | 23ppm | 20ppm | | |
| NO2 | 4ppm | 4ppm | | |
| NOX | 28ppm | 24ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 20ppm | 17ppm | | |
| NOX (15) | 23ppm | 21ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.41 MW | 9.51 MW | | |
| KSCF/hour | 21 KSCFH | 40 KSCFH | | |

**Signature:** Justin Poirier

| Date: 07/01/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1307 | | | |
| Recorded Test | 1317 | | | |
| O2 | 3.8% | | | |
| CO | 10 ppm | | | |
| Eff | 83.2% | | | |
| CO2 | 9.7% | | | |
| T-Stk | 353°F | | | |
| T-Air | 66.3°F | | | |
| EA | 19.6% | | | |
| CO (15) | 3ppm | | | |
| NO | 53 ppm | | | |
| NO2 | 3 ppm | | | |
| NOX | 56 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 18 ppm | | | |
| NOX (15) | 19 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 57KPPH | | | |

**Signature:** Justin Poirier

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 35 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

ime: 01:17:56 PM Boiler #3
ate: 02/01/21

Fuel
NGAS

| | |
|---|---|
| ₂ | 3.8 % |
| ) | 10 ppm |
| ff | 83.2 % |
| )₂ | 9.7 % |
| -STK | 353 °F |
| -AIR | 66.3 °F |
| A | 19.6 % |
| )(15) | 3 ppm |
| ) | 53 ppm |
| )₂ | 3 ppm |
| )x | 56 ppm |
| )₂ | *** ppm |
| )(15) | 18 ppm |
| )₂(15) | 1 ppm |
| )x(15) | 19 ppm |
| )₂(15) | *** ppm |

Draft Reading
-0.74 inwc

omments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:56:29 PM
Date: 02/01/21 GT3DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.1 % |
| CO | 3 ppm |
| Eff | 71.9 % |
| $CO_2$ | 3.8 % |
| T-STK | 371 °F |
| T-AIR | 42.9 °F |
| EA | 184.9 % |
| CO(15) | 3 ppm |
| NO | 20 ppm |
| $NO_2$ | 4 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.56 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:48:35 PM GT1DB
Date: 02/01/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 2 ppm |
| Eff | 72.4 % |
| $CO_2$ | 3.9 % |
| T-STK | 371 °F |
| T-AIR | 47.2 °F |
| EA | 179.8 % |
| CO(15) | 2 ppm |
| NO | 23 ppm |
| $NO_2$ | 4 ppm |
| NOx | 28 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.50 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 07/01/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1343 | 1351 | | |
| Recorded Test | 1348 | 1356 | | |
| O2 | 14.0% | 14.1% | | |
| CO | 2ppm | 3ppm | | |
| Eff | 72.4% | 71.9% | | |
| CO2 | 3.9% | 3.8% | | |
| T-Stk | 371°F | 371°F | | |
| T-Air | 47.2°F | 48.9°F | | |
| EA | 179.8% | 184.9% | | |
| CO (15) | 2ppm | 3ppm | | |
| NO | 23ppm | 20ppm | | |
| NO2 | 4ppm | 4ppm | | |
| NOX | 28ppm | 24ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 20ppm | 17ppm | | |
| NOX (15) | 23ppm | 21ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.41 MW | 9.51 MW | | |
| KSCF/hour | 21 KSCFH | 40 KSCFH | | |

**Signature:** Justin Poirier

| Date: 07/01/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1307 | | | |
| Recorded Test | 1317 | | | |
| O2 | 3.8% | | | |
| CO | 10 ppm | | | |
| Eff | 83.2% | | | |
| CO2 | 9.7% | | | |
| T-Stk | 353°F | | | |
| T-Air | 66.3°F | | | |
| EA | 19.6% | | | |
| CO (15) | 3ppm | | | |
| NO | 53 ppm | | | |
| NO2 | 3 ppm | | | |
| NOX | 56 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 18 ppm | | | |
| NOX (15) | 19 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 57KPPH | | | |

**Signature:** Justin Poirier

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 35 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

ime: 01:17:56 PM Boiler #3
ate: 02/01/21

Fuel
NGAS

| | |
|---|---|
| ₂ | 3.8 % |
| ) | 10 ppm |
| ff | 83.2 % |
| )₂ | 9.7 % |
| -STK | 353 °F |
| -AIR | 66.3 °F |
| A | 19.6 % |
| )(15) | 3 ppm |
| ) | 53 ppm |
| )₂ | 3 ppm |
| )x | 56 ppm |
| )₂ | *** ppm |
| )(15) | 18 ppm |
| )₂(15) | 1 ppm |
| )x(15) | 19 ppm |
| )₂(15) | *** ppm |

Draft Reading
-0.74 inwc

omments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:56:29 PM
Date: 02/01/21 GT3DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.1 % |
| CO | 3 ppm |
| Eff | 71.9 % |
| $CO_2$ | 3.8 % |
| T-STK | 371 °F |
| T-AIR | 42.9 °F |
| EA | 184.9 % |
| CO(15) | 3 ppm |
| NO | 20 ppm |
| $NO_2$ | 4 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.56 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:48:35 PM GT1DB
Date: 02/01/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 2 ppm |
| Eff | 72.4 % |
| $CO_2$ | 3.9 % |
| T-STK | 371 °F |
| T-AIR | 47.2 °F |
| EA | 179.8 % |
| CO(15) | 2 ppm |
| NO | 23 ppm |
| $NO_2$ | 4 ppm |
| NOx | 28 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.50 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 03/08/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1045 | 1053 | | |
| Recorded Test | 1050 | 1058 | | |
| O2 | 14.3% | 14.6 % | | |
| CO | 3ppm | 4ppm | | |
| Eff | 77.4% | 71.0% | | |
| CO2 | 3.7% | 3.6% | | |
| T-Stk | 375°F | 380°F | | |
| T-Air | 63.3°F | 59.3°F | | |
| EA | 197.0% | 206.7% | | |
| CO (15) | 3ppm | 4ppm | | |
| NO | 19 ppm | 19 ppm | | |
| NO2 | 3ppm | 3ppm | | |
| NOX | 22ppm | 22 ppm | | |
| SO2 | ***ppm | ***ppm | | |
| NO (15) | 17ppm | 18 ppm | | |
| NOX (15) | 20 ppm | 21 ppm | | |
| SO2 (15 | ***ppm | ***ppm | | |
| Mega Watts | 9.5 MW | 9.7 MW | | |
| KSCF/hour | 33 KSCFH | 40 KSCFH | | |

**Signature:** J Poirier

| Date: 03/08/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 1101 | | |
| Recorded Test | | 1116 | | |
| O2 | | 4.1 % | | |
| CO | | 0ppm | | |
| Eff | | 75.8% | | |
| CO2 | | 9.5% | | |
| T-Stk | | 637°F | | |
| T-Air | | 79.9°F | | |
| EA | | 21.9% | | |
| CO (15) | | 0 ppm | | |
| NO | | 87ppm | | |
| NO2 | | 0ppm | | |
| NOX | | 87ppm | | |
| SO2 | | ***ppm | | |
| NO (15) | | 89 ppm | | |
| NOX (15) | | 89 ppm | | |
| SO2 (15 | | ***ppm | | |
| K lbs/hour | | 69 KPPH | | |

**Signature:** J Poirier

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:16:35 AM
Date: 02/08/21 Boiler #4

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.1 % |
| CO | 0 ppm |
| Eff | 75.8 % |
| $CO_2$ | 9.5 % |
| T-STK | 637 °F |
| T-AIR | 79.9 °F |
| EA | 21.9 % |
| CO(15) | 0 ppm |
| NO | 82 ppm |
| $NO_2$ | 0 ppm |
| NOx | 82 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.95 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:58:14 AM
Date: 02/08/21 GT2DB

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 4 ppm |
| Eff | 71.0 % |
| $CO_2$ | 3.6 % |
| T-STK | 380 °F |
| T-AIR | 59.2 °F |
| EA | 206.7 % |
| CO(15) | 4 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.53 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:50:47 AM
Date: 02/08/21 GT1DB

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 3 ppm |
| Eff | 72.4 % |
| $CO_2$ | 3.7 % |
| T-STK | 375 °F |
| T-AIR | 63.2 °F |
| EA | 192.0 % |
| CO(15) | 3 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.51 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 02/15/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0929 | 0937 | | |
| Recorded Test | 0935 | 0943 | | |
| O2 | 14.4% | 14.0% | | |
| CO | 4ppm | 4 ppm | | |
| Eff | 72.5% | 72.9% | | |
| CO2 | 3.7% | 3.9% | | |
| T-Stk | 370°F | 374°F | | |
| T-Air | 66.2°F | 59.7°F | | |
| EA | 198.0% | 181.1% | | |
| CO (15) | 3ppm | 3ppm | | |
| NO | 23ppm | 22 ppm | | |
| NO2 | 5ppm | 4ppm | | |
| NOX | 27ppm | 26 ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 21ppm | 19ppm | | |
| NOX (15) | 25ppm | 23ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.58 MW | 9.73 MW | | |
| KSCF/hour | 18 KSCFH | 39 KSCFH | | |

**Signature:** Justin Poirier

| Date: 02/15/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0947 | | | |
| Recorded Test | 1003 | | | |
| O2 | 4.6% | | | |
| CO | 0ppm | | | |
| Eff | 84.2% | | | |
| CO2 | 9.7% | | | |
| T-Stk | 317°F | | | |
| T-Air | 77.3°F | | | |
| EA | 25.2% | | | |
| CO (15) | 0ppm | | | |
| NO | 59ppm | | | |
| NO2 | 1ppm | | | |
| NOX | 60ppm | | | |
| SO2 | *** | | | |
| NO (15) | 31ppm | | | |
| NOX (15) | 33ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 36 KPPH | | | |

**Signature:** Justin Poirier

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES AND THEN PRINT TEST RESULTS**

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS**

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:03:42 AM
Date: 02/15/21 Boiler 2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.6 % |
| CO | 0 ppm |
| Eff | 84.2 % |
| $CO_2$ | 9.2 % |
| T-STK | 317 °F |
| T-AIR | 77.3 °F |
| EA | 25.2 % |
| CO(15) | 0 ppm |
| NO | 59 ppm |
| $NO_2$ | 1 ppm |
| NOx | 60 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.64 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:43:32 AM
Date: 02/15/21 GT2DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 4 ppm |
| Eff | 72.9 % |
| $CO_2$ | 3.9 % |
| T-STK | 374 °F |
| T-AIR | 59.7 °F |
| EA | 181.1 % |
| CO(15) | 3 ppm |
| NO | 22 ppm |
| $NO_2$ | 4 ppm |
| NOx | 26 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.50 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 09:35:31 AM
Date: 02/15/21 GT1DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.4 % |
| CO | 4 ppm |
| Eff | 72.5 % |
| $CO_2$ | 3.7 % |
| T-STK | 370 °F |
| T-AIR | 66.2 °F |
| EA | 198.0 % |
| CO(15) | 3 ppm |
| NO | 23 ppm |
| $NO_2$ | 5 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.49 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 02/22/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 2206 | 2212 | | |
| Recorded Test | 2211 | 2217 | | |
| O2 | 14.0 % | 14.5 % | | |
| CO | 3ppm | 6ppm | | |
| Eff | 73.6 % | 72.1 % | | |
| CO2 | 3.9 % | 3.6 % | | |
| T-Stk | 377°F | 375°F | | |
| T-Air | 73.4°F | 66.8°F | | |
| EA | 179.7 % | 201.3 % | | |
| CO (15) | 3ppm | 6ppm | | |
| NO | 216ppm | 18ppm | | |
| NO2 | 3ppm | 3ppm | | |
| NOX | 219ppm | 21ppm | | |
| SO2 | * * * | * * * | | |
| NO (15) | 22ppm | 17ppm | | |
| NOX (15) | 25ppm | 20ppm | | |
| SO2 (15 | * * * | * * * | | |
| Mega Watts | 8.9 MW | 9.1 MW | | |
| KSCF/hour | 25KSCFH | 37KSCFH | | |

**Signature:**

| Date: 02/22/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 2140 | | | |
| Recorded Test | 2157 | | | |
| O2 | 5.0 % | | | |
| CO | 0 ppm | | | |
| Eff | 84.4 % | | | |
| CO2 | 9.0 % | | | |
| T-Stk | 309°F | | | |
| T-Air | 79.9°F | | | |
| EA | 28.0 % | | | |
| CO (15) | 0 ppm | | | |
| NO | 60ppm | | | |
| NO2 | 2ppm | | | |
| NOX | 62ppm | | | |
| SO2 | * * * | | | |
| NO (15) | 22ppm | | | |
| NOX (15) | 23ppm | | | |
| SO2 (15 | * * * | | | |
| K lbs/hour | 32 KPPH | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:11:10 PM
Date: 02/22/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.0 % |
| CO | 3 ppm |
| Eff | 73.6 % |
| $CO_2$ | 3.9 % |
| T-Stk | 377 °F |
| T-Air | 73.4 °F |
| EA | 179.7 % |
| CO(15) | 3 ppm |
| NO | 26 ppm |
| $NO_2$ | 3 ppm |
| NOx | 29 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | **** ppm |

Comments: #1 8.9 MW
25KSCFH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:17:31 PM
Date: 02/22/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.5 % |
| CO | 6 ppm |
| Eff | 72.1 % |
| $CO_2$ | 3.6 % |
| T-Stk | 375 °F |
| T-Air | 66.8 °F |
| EA | 201.3 % |
| CO(15) | 6 ppm |
| NO | 18 ppm |
| $NO_2$ | 3 ppm |
| NOx | 21 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Comments: #2 9.1MW
37KSCFH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:57:41 PM
Date: 02/22/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.0 % |
| CO | 0 ppm |
| Eff | 84.4 % |
| $CO_2$ | 9.0 % |
| T-Stk | 309 °F |
| T-Air | 79.9 °F |
| EA | 28.0 % |
| CO(15) | 0 ppm |
| NO | 60 ppm |
| $NO_2$ | 2 ppm |
| NOx | 62 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | **** ppm |

Comments: BOILER #2
32 KPPH
655 ACFM

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1340 | ~~0~~ 1349 |
| Recorded Test | 1345 | 1354 |
| O2 | 14.8% | 14.4% |
| CO | 0PPM | 0 PPM |
| Eff | 77.6% | 78.2% |
| CO2 | 3.5% | 3.7% |
| T-Stk | 280°F | 285°F |
| T-Air | 71.1°F | 72.9°F |
| EA | 214.3% | 196.4% |
| CO (15) | 0 PPM | 0 PPM |
| NO | 19.1 PPM | 21.7PPM |
| NO2 | 3.9 PPM | 3.4 PPM |
| NOX | 23 PPM | 25.1 PPM |
| SO2 | | |
| NO (15) | 18PPM | 20 PPM |
| NOX (15) | 22PPM | 23PPM |
| SO2 (15 | | |
| Mega Watts | 8.77MW | 9.28MW |
| KSCF/hour | 13 KSCF | 35KSCF |

**Signature:** JOSH SOSA

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:45:30 PM
Date: 03/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.8 % |
| CO | 0 ppm |
| Eff | 77.6 % |
| $CO_2$ | 3.5 % |
| T-Stk | 280 °F |
| T-Air | 71.1 °F |
| EA | 214.3 % |
| CO(15) | 0 ppm |
| NO | 19.1 ppm |
| $NO_2$ | 3.9 ppm |
| NOx | 23.0 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.76 LPM |

Comments: GT#1 COMBINED CYCLE

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:54:21 PM
Date: 03/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.4 % |
| CO | 0 ppm |
| Eff | 78.2 % |
| $CO_2$ | 3.7 % |
| T-Stk | 285 °F |
| T-Air | 72.9 °F |
| EA | 196.4 % |
| CO(15) | 0 ppm |
| NO | 21.7 ppm |
| $NO_2$ | 3.4 ppm |
| NOx | 25.1 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.76 LPM |

Comments: GT#2 COMBINED CYCLE

| Date: | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

TES AND THEN PRINT TEST RESULTS

ES AND THEN PRINT TEST RESULTS

TO THIS SHEET

## EMISSION TEST COLLEGE

| Date: 03/08/21 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0942 | 0946 |
| Recorded Test | 0945 | 0950 |
| O2 | 15.1 % | 15.1 % |
| CO | 6 PPM | 6 PPM |
| Eff | 75.4 % | 75.7 % |
| CO2 | 3.3 % | 3.3 % |
| T-Stk | 298 °F | 288 °F |
| T-Air | 66.6 °F | 61.6 °F |
| EA | 233.4 % | 232.9 % |
| CO (15) | 6 PPM | 6 PPM |
| NO | 19.1 PPM | 17.1 PPM |
| NO2 | 4.7 PPM | 3.2 PPM |
| NOX | 23.7 PPM | 20.3 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | 20 PPM | 18 PPM |
| NOX (15) | 24 PPM | 21 PPM |
| SO2 (15 | *** PPM | *** PPM |
| Mega Watts | 9.4 | 9.3 |
| KSCF/hour | 12 | 37 |

**Signature:** Kenneth Wilson

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:45:01 AM
Date: 03/08/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 6 ppm |
| Eff | 75.4 % |
| $CO_2$ | 3.3 % |
| T-Stk | 298 °F |
| T-Air | 66.6 °F |
| EA | 233.4 % |
| CO(15) | 6 ppm |
| NO | 19.1 ppm |
| $NO_2$ | 4.7 ppm |
| NOx | 23.7 ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 5 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.76 LPM |

GT 1 DB

Comments:

MW: 9.4
KSCF/hr: 12

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:50:31 AM
Date: 03/08/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 6 ppm |
| Eff | 75.7 % |
| $CO_2$ | 3.3 % |
| T-Stk | 288 °F |
| T-Air | 61.6 °F |
| EA | 232.9 % |
| CO(15) | 6 ppm |
| NO | 17.1 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 20.3 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

GT 2 DB

Comments:

MW: 9.3
KSCF/hr: 37

| Date: | BLR 2 | BLR 4 | BLR 2 |
|---|---|---|---|
| Start Test | 0951 | | |
| Recorded Test | 1006 | | |
| O2 | 4.7 % | | |
| CO | 0 PPM | | |
| Eff | 83.4 % | | |
| CO2 | 9.2 % | | |
| T-Stk | 337 °F | | |
| T-Air | 68.0 °F | | |
| EA | 25.7 % | | |
| CO (15) | 0 PPM | | |
| NO | 57 PPM | | |
| NO2 | 1.3 PPM | | |
| NOX | 59 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 21 PPM | | |
| NOX (15) | 21 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 37 | | |

**Signature:** Kenneth Wilson

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:06:44 AM
Date: 03/08/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.7 % |
| CO | 0 ppm |
| Eff | 83.4 % |
| $CO_2$ | 9.2 % |
| T-Stk | 337 °F |
| T-Air | 68.0 °F |
| EA | 25.7 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 59 ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

BLR 2

Comments:

K lbs/hr : 37

ACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1233 | 1238 |
| Recorded Test | 1236 | 1241 |
| O2 | 15.7 % | 14.8 % |
| CO | 4 PPM | 2 PPM |
| Eff | 73.9 % | 76.5 % |
| CO2 | 2.9 % | 3.5 % |
| T-Stk | 300 °F | 298 °F |
| T-Air | 69.8 °F | 70.8 °F |
| EA | 250. % | 213.5 % |
| CO (15) | 4 PPM | 2 PPM |
| NO | 14.0 PPM | 17.8 PPM |
| NO2 | 2.9 PPM | 2.7 PPM |
| NOX | 16.9 PPM | 20.4 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | 16 PPM | 17 PPM |
| NOX (15) | 19 PPM | 20 PPM |
| SO2 (15 | *** PPM | *** PPM |
| Mega Watts | 8.23 | 8.07 |
| KSCF/hour | 15 | 30 |

**Signature:** Ken Williams

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:36:35 PM
Date: 03/15/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.7 % |
| CO | 4 ppm |
| Eff | 73.9 % |
| $CO_2$ | 2.9 % |
| T-Stk | 300 °F |
| T-Air | 69.8 °F |
| EA | 250.0 % |
| CO(15) | 4 ppm |
| NO | 14.0 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 16.9 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.75 LPM |

GT1DB

Comments: MW: 8.23
KSCF: 15

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:41:08 PM
Date: 03/15/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.8 % |
| CO | 2 ppm |
| Eff | 76.5 % |
| $CO_2$ | 3.5 % |
| T-Stk | 298 °F |
| T-Air | 70.8 °F |
| EA | 213.5 % |
| CO(15) | 2 ppm |
| NO | 17.8 ppm |
| $NO_2$ | 2.7 ppm |
| NOx | 20.4 ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.75 LPM |

GT2 DB

Comments:
MW: 8.07
KSCF: 30

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** _____

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

1 TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:58:19 AM
Date: 03/22/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 5 ppm |
| Eff | 72.6 % |
| $CO_2$ | 3.7 % |
| T-Stk | 376 °F |
| T-Air | 68.1 °F |
| EA | 192.6 % |
| CO(15) | 5 ppm |
| NO | 19 ppm |
| $NO_2$ | 5 ppm |
| NOx | 24 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | **** ppm |

Comments: 9.4 MW
30 KSCFH

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:50:06 AM
Date: 03/22/21 GT1 DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.0 % |
| CO | 7 ppm |
| Eff | 71.0 % |
| $CO_2$ | 3.3 % |
| T-Stk | 371 °F |
| T-Air | 71.6 °F |
| EA | 228.6 % |
| CO(15) | 7 ppm |
| NO | 15 ppm |
| $NO_2$ | 6 ppm |
| NOx | 21 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 6 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | **** ppm |

Comments: 9.1 MW
8 KSCFH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 03/28/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0845 | 0857 | | |
| Recorded Test | 0850 | 0858 | | |
| O2 | 15.0% | 14.3% | | |
| CO | 7ppm | 5ppm | | |
| Eff | 71.0% | 72.6% | | |
| CO2 | 3.3% | 3.7% | | |
| T-Stk | 371°F | 376°F | | |
| T-Air | 71.6°F | 68.1°F | | |
| EA | 228.6% | 193.6% | | |
| CO (15) | 7ppm | 5ppm | | |
| NO | 15ppm | 19ppm | | |
| NO2 | 6ppm | 5ppm | | |
| NOX | 21ppm | 24ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 15ppm | 17ppm | | |
| NOX (15) | 21ppm | 21ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.1 MW | 9.4 MW | | |
| KSCF/hour | 8 KSCFH | 30 KSCFH | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 03/29/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1220 | 1236 | | |
| Recorded Test | 1233 | 1247 | | |
| O2 | 15.4% | 15.9% | | |
| CO | 11ppm | 1ppm | | |
| Eff | 68.5% | 66.1% | | |
| CO2 | 3.1% | 2.8% | | |
| T-Stk | 389°F | 389°F | | |
| T-Air | 71.4°F | 65.7°F | | |
| EA | 250% | 250% | | |
| CO (15) | 12ppm | 1ppm | | |
| NO | 15ppm | 17ppm | | |
| NO2 | 5ppm | 3ppm | | |
| NOX | 21ppm | 20ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 17ppm | 30ppm | | |
| NOX (15) | 22ppm | 34ppm | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 8.87 MW | 9.18 MW | | |
| KSCF/hour | 5 KSCFH | 10 KSCFH | | |

**Signature:** Justin Poirier

| Date: 03/29/2021 | BLR 2 | BLR 4 | ~~BLR 2~~ TEMP | BLR 4 |
|---|---|---|---|---|
| Start Test | 1256 | 1309 | 1430 | |
| Recorded Test | 1308 | 1322 | 1445 | |
| O2 | 5.4% | 6.9% | 8.7% | |
| CO | 0ppm | 0ppm | 6ppm | |
| Eff | 85.0% | 80.8% | 100.0% | |
| CO2 | 8.8% | 7.9% | 6.9% | |
| T-Stk | 387°F | 414°F | 358°F | |
| T-Air | 82.5°F | 91.0°F | 71.7°F | |
| EA | 30.7% | 43.7% | 63.9% | |
| CO (15) | 0ppm | 0ppm | 3ppm | |
| NO | 53ppm | 64ppm | 18ppm | |
| NO2 | 1ppm | 0ppm | 0ppm | |
| NOX | 54ppm | 64ppm | 18ppm | |
| SO2 | *** | *** | *** | |
| NO (15) | 30ppm | 37ppm | 9ppm | |
| NOX (15) | 30ppm | 37ppm | 9ppm | |
| SO2 (15 | *** | *** | *** | |
| K lbs/hour | 31 KPPH | 33 KPPH | 15 KPPH | |

**Signature:** Justin Poirier

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:42:44 AM
Date: 03/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 1 ppm |
| Eff | 66.1 % |
| $CO_2$ | 2.8 % |
| T-Stk | 389 °F |
| T-Air | 65.7 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 17 ppm |
| $NO_2$ | 3 ppm |
| NOx | 20 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | *** ppm |

Comments: 9.1 MW
10KSCFH

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:33:47 AM
Date: 03/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.4 % |
| CO | 11 ppm |
| Eff | 68.5 % |
| $CO_2$ | 3.1 % |
| T-Stk | 389 °F |
| T-Air | 71.4 °F |
| EA | 250.0 % |
| CO(15) | 12 ppm |
| NO | 15 ppm |
| $NO_2$ | 5 ppm |
| NOx | 21 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 6 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Comments: 8.89 MW
5KSCFH

BACHARACH, INC.
PCA 3
SN: TP1006

me: 01:45:16 PM TEMP
te: 03/29/21 Boiler

Fuel
NGAS

| | |
|---|---|
| | 8.7 % |
| | 6 ppm |
| | 100.0 % |
| | 6.9 % |
| tk | 58 °F |
| ir | 71.7 °F |
| | 63.9 % |
| 5) | 3 ppm |
| | 18 ppm |
| | 0 ppm |
| x | 18 ppm |
| | *** ppm |
| (15) | 9 ppm |
| (15) | 0 ppm |
| (15) | 9 ppm |
| (15) | *** ppm |

ents: 15 KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:22:14 PM Boiler#4
Date: 03/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.9 % |
| CO | 0 ppm |
| Eff | 80.8 % |
| $CO_2$ | 7.9 % |
| T-Stk | 414 °F |
| T-Air | 91.0 °F |
| EA | 43.7 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 0 ppm |
| NOx | 64 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | *** ppm |

Comments: 33 KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:08:08 PM Boiler#2
Date: 03/29/21

Fuel
NGAS

| | |
|---|---|
| | 5.4 % |
| $O_2$ | 0 ppm |
| CO | 85.0 % |
| Eff | 8.8 % |
| $CO_2$ | 287 °F |
| T-Stk | 82.5 °F |
| T-Air | 30.7 % |
| EA | 0 ppm |
| CO(15) | 53 ppm |
| NO | 1 ppm |
| $NO_2$ | 54 ppm |
| NOx | *** ppm |
| $SO_2$ | 20 ppm |
| NO(15) | 1 ppm |
| $NO_2$(15) | 20 ppm |
| NOx(15) | *** ppm |
| $SO_2$(15) | |

Comments: 31 KPPH

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

July 07, 2021

Ms. Susan Nash
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Ms. Nash & Director:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of April 1, 2021 through June 30, 2021.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility April 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 569.10 | 0.00 | 71312.87 | 0.00 | | 505,480,000 | 0 | 528,707 | 0 | 0.0357 | 0.0000 | 0.0357 | 4.3144 | 0.0000 | 4.3144 | 0.1070 | 0.0000 | 0.1070 | 0.2139 | 0.0000 | 0.2139 | 0.1747 | 0.0000 | 0.1747 | 0.1747 | 0.0000 | 0.1747 |
| Turbine 2 | 290.20 | 0.00 | 36399.06 | 0.00 | | 798,139,000 | 0 | 834,813 | 0 | 0.0364 | 0.0000 | 0.0364 | 2.3477 | 0.0000 | 2.3477 | 0.2548 | 0.0000 | 0.2548 | 0.1092 | 0.0000 | 0.1092 | 0.0655 | 0.0000 | 0.0655 | 0.0655 | 0.0000 | 0.0655 |
| Duct Burner 1 | 565.50 | | 15281.33 | | | 53,580,000 | | 56,042 | | 0.0412 | | 0.0412 | 0.0993 | | 0.0993 | 0.0764 | | 0.0764 | 0.0045 | | 0.0045 | 0.0150 | | 0.0150 | 0.0150 | | 0.0150 |
| Duct Burner 2 | 181.40 | | 3116.93 | | | 222,571,000 | | 232,798 | | 0.0084 | | 0.0084 | 0.0203 | | 0.0203 | 0.0156 | | 0.0156 | 0.0009 | | 0.0009 | 0.0031 | | 0.0031 | 0.0031 | | 0.0031 |
| Boiler 2 | 452.20 | 0.00 | 22731.63 | 0.00 | | | | | | 0.0027 | 0.0000 | 0.0027 | 1.1553 | 0.0000 | 1.1553 | 0.0063 | 0.0000 | 0.0063 | 0.0067 | 0.0000 | 0.0067 | 0.1021 | 0.0000 | 0.1021 | 0.1021 | 0.0000 | 0.1021 |
| Boiler 4 | 167.20 | 0.00 | 6369.84 | 0.00 | | | | | | 0.0014 | 0.0000 | 0.0014 | 0.3263 | 0.0000 | 0.3263 | 0.0069 | 0.0000 | 0.0069 | 0.0019 | 0.0000 | 0.0019 | 0.0192 | 0.0000 | 0.0192 | 0.0192 | 0.0000 | 0.0192 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 165.40 | 0.00 | 1.17 | 0.00 | | | | | | 0.0024 | 0.0000 | 0.0024 | 0.0220 | 0.0000 | 0.0220 | 0.0230 | 0.0000 | 0.0230 | 0.0004 | 0.0000 | 0.0004 | 0.0065 | 0.0000 | 0.0065 | 0.0065 | 0.0000 | 0.0065 |
| Emissions Total | | | | | | | | | | 0.1282 | 0.0000 | 0.1282 | 8.2855 | 0.0000 | 8.2855 | 0.4899 | 0.0000 | 0.4899 | 0.3375 | 0.0000 | 0.3375 | 0.3860 | 0.0000 | 0.3860 | 0.3860 | 0.0000 | 0.3860 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 2.00 | 111.59 | 8.92 | 4.63 | 5.61 | 5.61 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility May 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 699.70 | 0.00 | 89909.86 | 0.00 | | 591,440,000 | 0 | 618,617 | 0 | 0.0450 | 0.0000 | 0.0450 | 5.4395 | 0.0000 | 5.4395 | 0.1349 | 0.0000 | 0.1349 | 0.2697 | 0.0000 | 0.2697 | 0.2203 | 0.0000 | 0.2203 | 0.2203 | 0.0000 | 0.2203 |
| Turbine 2 | 575.30 | 0.00 | 71009.55 | 0.00 | | 788,970,000 | 0 | 825,223 | 0 | 0.0710 | 0.0000 | 0.0710 | 4.5801 | 0.0000 | 4.5801 | 0.4971 | 0.0000 | 0.4971 | 0.2130 | 0.0000 | 0.2130 | 0.1278 | 0.0000 | 0.1278 | 0.1278 | 0.0000 | 0.1278 |
| Duct Burner 1 | 684.60 | | 15145.36 | | | 68,060,000 | | 71,187 | | 0.0408 | | 0.0408 | 0.0984 | | 0.0984 | 0.0757 | | 0.0757 | 0.0045 | | 0.0045 | 0.0149 | | 0.0149 | 0.0149 | | 0.0149 |
| Duct Burner 2 | 37.90 | | 993.65 | | | 193,700,000 | | 202,601 | | 0.0027 | | 0.0027 | 0.0065 | | 0.0065 | 0.0050 | | 0.0050 | 0.0003 | | 0.0003 | 0.0010 | | 0.0010 | 0.0010 | | 0.0010 |
| Boiler 2 | 65.00 | 1.00 | 324.24 | 2.47 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0165 | 0.0002 | 0.0166 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0015 | 0.0001 | 0.0016 | 0.0015 | 0.0001 | 0.0016 |
| Boiler 4 | 85.20 | 0.00 | 1655.74 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0848 | 0.0000 | 0.0848 | 0.0018 | 0.0000 | 0.0018 | 0.0005 | 0.0000 | 0.0005 | 0.0050 | 0.0000 | 0.0050 | 0.0050 | 0.0000 | 0.0050 |
| Emerg. Gen. | | 10.00 | | 77.63 | 10.5 | | | | | | 0.0035 | 0.0035 | | 0.1242 | 0.1242 | | 0.0330 | 0.0330 | | 0.0001 | 0.0001 | | 0.0022 | 0.0022 | | 0.0027 | 0.0027 |
| Mobile Boiler | 202.10 | 0.00 | 1.91 | 0.00 | | | | | | 0.0040 | 0.0000 | 0.0040 | 0.0360 | 0.0000 | 0.0360 | 0.0375 | 0.0000 | 0.0375 | 0.0006 | 0.0000 | 0.0006 | 0.0106 | 0.0000 | 0.0106 | 0.0106 | 0.0000 | 0.0106 |
| Emissions Total | | | | | | | | | | 0.1639 | 0.0035 | 0.1674 | 10.2619 | 0.1244 | 10.3862 | 0.7520 | 0.0330 | 0.7850 | 0.4887 | 0.0001 | 0.4888 | 0.3810 | 0.0023 | 0.3833 | 0.3810 | 0.0028 | 0.3838 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.99 | 116.08 | 8.92 | 4.87 | 5.77 | 5.77 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility June 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 715.30 | 0.00 | 89271.83 | 0.00 | | 676,790,000 | 0 | 707,889 | 0 | 0.0446 | 0.0000 | 0.0446 | 5.4009 | 0.0000 | 5.4009 | 0.1339 | 0.0000 | 0.1339 | 0.2678 | 0.0000 | 0.2678 | 0.2187 | 0.0000 | 0.2187 | 0.2187 | 0.0000 | 0.2187 |
| Turbine 2 | 655.50 | 0.00 | 81866.51 | 0.00 | | 836,470,000 | 0 | 874,906 | 0 | 0.0819 | 0.0000 | 0.0819 | 5.2804 | 0.0000 | 5.2804 | 0.5731 | 0.0000 | 0.5731 | 0.2456 | 0.0000 | 0.2456 | 0.1474 | 0.0000 | 0.1474 | 0.1474 | 0.0000 | 0.1474 |
| Duct Burner 1 | 702.50 | | 10103.88 | | | 77,720,000 | | 81,291 | | 0.0272 | | 0.0272 | 0.0657 | | 0.0657 | 0.0505 | | 0.0505 | 0.0030 | | 0.0030 | 0.0099 | | 0.0099 | 0.0099 | | 0.0099 |
| Duct Burner 2 | 9.40 | | 407.92 | | | 191,600,000 | | 200,404 | | 0.0011 | | 0.0011 | 0.0027 | | 0.0027 | 0.0020 | | 0.0020 | 0.0001 | | 0.0001 | 0.0004 | | 0.0004 | 0.0004 | | 0.0004 |
| Boiler 2 | 55.00 | 0.00 | 1199.70 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0610 | 0.0000 | 0.0610 | 0.0003 | 0.0000 | 0.0003 | 0.0004 | 0.0000 | 0.0004 | 0.0054 | 0.0000 | 0.0054 | 0.0054 | 0.0000 | 0.0054 |
| Boiler 4 | 547.40 | 0.00 | 13927.87 | 0.00 | | | | | | 0.0030 | 0.0000 | 0.0030 | 0.7136 | 0.0000 | 0.7136 | 0.0151 | 0.0000 | 0.0151 | 0.0041 | 0.0000 | 0.0041 | 0.0420 | 0.0000 | 0.0420 | 0.0420 | 0.0000 | 0.0420 |
| Emerg. Gen. | | 0.00 | | 0.00 | 10.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 31.90 | 0.00 | 0.19 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0036 | 0.0000 | 0.0036 | 0.0038 | 0.0000 | 0.0038 | 0.0001 | 0.0000 | 0.0001 | 0.0011 | 0.0000 | 0.0011 | 0.0011 | 0.0000 | 0.0011 |
| Emissions Total | | | | | | | | | | 0.1584 | 0.0000 | 0.1584 | 11.5278 | 0.0000 | 11.5278 | 0.7787 | 0.0000 | 0.7787 | 0.5210 | 0.0000 | 0.5210 | 0.4248 | 0.0000 | 0.4248 | 0.4248 | 0.0000 | 0.4248 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 2.08 | 122.86 | 9.17 | 5.28 | 5.94 | 5.94 |
| | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

Temp Boiler

| Date: 04/05/2021 | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 1215 | 1233 | 1158 | |
| Recorded Test | 1237 | 1249 | 1213 | |
| O2 | 3.4% | 7.3% | 7.5% | |
| CO | 3ppm | 0ppm | 2ppm | |
| Eff | 82.7% | 80.5% | 99.8% | |
| CO2 | 9.9% | 7.7% | 7.6% | |
| T-Stk | 403°F | 423°F | 77°F | |
| T-Air | 90.8°F | 96.8°F | 80.0°F | |
| EA | 17.5% | 47.8% | 49.6% | |
| CO (15) | 1ppm | 0ppm | 1ppm | |
| NO | 65ppm | 63ppm | 25ppm | |
| NO2 | 2ppm | 0ppm | 2ppm | |
| NOX | 68ppm | 63ppm | 27ppm | |
| SO2 | *** | *** | *** | |
| NO (15) | 27ppm | 27ppm | 11ppm | |
| NOX (15) | 23ppm | 27ppm | 1ppm | |
| SO2 (15 | *** | *** | *** | |
| K lbs/hour | 82 KPPH | 17 KPPH | 30 KPPH | |

**Signature:** Justin Poirier

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 2
/SN: RP1001

M:13:21 AM
04/05/21

Fuel
NGAS

| | |
|---|---|
| O2 | 7.5 % |
| C | 2 ppm |
| | 99.8 % |
| | 7.6 % |
| | 77 °F |
| | 80.0 °F |
| | 49.6 % |
| | 1 ppm |
| | 25 ppm |
| | 2 ppm |
| | 27 ppm |
| | **** ppm |
| | 11 ppm |
| | 1 ppm |
| | 12 ppm |
| | **** ppm |

raft Reading
0.03 inwc

s: TEMP Boiler
30 KPPH

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:49:19 AM
Date: 04/05/21 Boiler #4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.3 % |
| CO | 0 ppm |
| Eff | 80.5 % |
| $CO_2$ | 7.7 % |
| T-STK | 423 °F |
| T-AIR | 96.8 °F |
| EA | 47.8 % |
| CO(15) | 0 ppm |
| NO | 63 ppm |
| $NO_2$ | 0 ppm |
| NOx | 63 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.31 inwc

Comments: 87KPPH

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 11:32:52 AM
Date: 04/05/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.4 % |
| CO | 3 ppm |
| Eff | 82.7 % |
| $CO_2$ | 9.9 % |
| T-STK | 403 °F |
| T-AIR | 90.8 °F |
| EA | 17.5 % |
| CO(15) | 1 ppm |
| NO | 65 ppm |
| $NO_2$ | 2 ppm |
| NOx | 68 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-1.40 inwc

Comments: Boiler #2
87KPPH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 04/12/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0954 | | | |
| Recorded Test | 0959 | | | |
| O2 | 13.2% | | | |
| CO | 4ppm | | | |
| Eff | 76.9 % | | | |
| CO2 | 4.3% | | | |
| T-Stk | 347°F | | | |
| T-Air | 78.7°F | | | |
| EA | 154.0% | | | |
| CO (15) | 3ppm | | | |
| NO | 21 ppm | | | |
| NO2 | 3 ppm | | | |
| NOX | 24 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 16 ppm | | | |
| NOX (15) | 18 ppm | | | |
| SO2 (15 | *** | | | |
| Mega Watts | 8.66 MW | | | |
| KSCF/hour | 47 KSCFH | | | |

**Signature:** Justin Poirier

| Date: 04/12/2021 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1003 | | | |
| Recorded Test | 1018 | | | |
| O2 | 5.0% | | | |
| CO | 0ppm | | | |
| Eff | 84.9% | | | |
| CO2 | 9.0% | | | |
| T-Stk | 396°F | | | |
| T-Air | 84.6°F | | | |
| EA | 37.9% | | | |
| CO (15) | 0ppm | | | |
| NO | 47 ppm | | | |
| NO2 | 1 ppm | | | |
| NOX | 48 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 17 ppm | | | |
| NOX (15) | 18 ppm | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 28 KPPH | | | |

**Signature:** Justin Poirier

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:18:29 AM
Date: 04/12/21 Boiler #2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.0 % |
| CO | 0 ppm |
| Eff | 84.9 % |
| $CO_2$ | 9.0 % |
| T-Stk | 296 °F |
| T-Air | 84.6 °F |
| EA | 27.9 % |
| CO(15) | 0 ppm |
| NO | 47 ppm |
| $NO_2$ | 1 ppm |
| NOx | 48 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | **** ppm |

Comments: 88 KPPH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:59:46 AM
Date: 04/12/21 GT1DB

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.2 % |
| CO | 4 ppm |
| Eff | 76.9 % |
| $CO_2$ | 4.3 % |
| T-Stk | 347 °F |
| T-Air | 78.7 °F |
| EA | 154.0 % |
| CO(15) | 3 ppm |
| NO | 21 ppm |
| $NO_2$ | -3 ppm |
| NOx | 24 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | **** ppm |

Comments: 8.66 MW
47 KSCFH

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/19/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1206 | | | 1213 |
| Recorded Test | 1209 | | | 1216 |
| O2 | 14.7 % | | | 15.7 % |
| CO | 7 PPM | | | 0 PPM |
| Eff | 76.8 % | | | 74.3 % |
| CO2 | 3.5 % | | | 2.9 % |
| T-Stk | 300 °F | | | 302 °F |
| T-Air | 77.5 °F | | | 77.3 °F |
| EA | 213.1 % | | | 250.0 % |
| CO (15) | 7 PPM | | | 1 PPM |
| NO | 15 PPM | | | 14 PPM |
| NO2 | 6 PPM | | | 4 PPM |
| NOX | 21 PPM | | | 18 PPM |
| SO2 | *** PPM | | | *** PPM |
| NO (15) | 14 PPM | | | 16 PPM |
| NOX (15) | 20 PPM | | | 20 PPM |
| SO2 (15 | *** PPM | | | *** PPM |
| Mega Watts | 8.59 | | | 9.06 |
| KSCF/hour | 10 | | | [redacted] |

**Signature:** _____

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** _____

GT1 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:09:43 PM
Date: 04/19/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.7 % |
| CO | 7 ppm |
| Eff | 76.8 % |
| $CO_2$ | 3.5 % |
| T-Stk | 300 °F |
| T-Air | 77.5 °F |
| EA | 213.1 % |
| CO(15) | 7 ppm |
| NO | 15 ppm |
| $NO_2$ | 6 ppm |
| NOx | 21 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 6 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW: 8.59
KSCF/hr: 10

**Boiler: RECORD TIME PROBE IS INSERTED**

**GT: RECORD TIME PROBE IS INSERTED (S**

WHEN FINISHED TE

GT2

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:16:17 PM
Date: 04/19/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 0 ppm |
| Eff | 74.3 % |
| $CO_2$ | 2.9 % |
| T-Stk | 302 °F |
| T-Air | 77.3 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 14 ppm |
| $NO_2$ | 4 ppm |
| NOx | 18 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW: 9.06

## EMISSION TEST

| Date: | GT 1 DB | ( |
|---|---|---|
| Start Test | 1240 | |
| Recorded Test | 1243 | |
| O2 | 14.3 % | |
| CO | 3 PPM | |
| Eff | 79.3 % | |
| CO2 | 3.7 % | |
| T-Stk | 271 °F | |
| T-Air | 74.3 °F | |
| EA | 191.6 % | |
| CO (15) | 2 PPM | |
| NO | 19 PPM | |
| NO2 | 4 PPM | |
| NOX | 24 PPM | |
| SO2 | *** PPM | |
| NO (15) | 17 PPM | |
| NOX (15) | 21 PPM | |
| SO2 (15 | *** PPM | |
| Mega Watts | 8.4 | |
| KSCF/hour | 20 | |

**Signature:** Ken Wells

GT 1 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:43:02 PM
Date: 04/26/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 3 ppm |
| Eff | 79.3 % |
| $CO_2$ | 3.7 % |
| T-Stk | 271 °F |
| T-Air | 74.3 °F |
| EA | 191.6 % |
| CO(15) | 2 ppm |
| NO | 19 ppm |
| $NO_2$ | 4 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 21 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

MW: 8.4
KSCF/hr: 20

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 01:07:12 PM
Date: 04/26/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.3 % |
| CO | 0 ppm |
| Eff | 85.8 % |
| $CO_2$ | 8.8 % |
| T-Stk | 267 °F |
| T-Air | 89.2 °F |
| EA | 30.5 % |
| CO(15) | 0 ppm |
| NO | 55 ppm |
| $NO_2$ | 1 ppm |
| NOx | 57 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 22 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

K lbs/hr: 22

| Date: | BLR 2 | BLF |
|---|---|---|
| Start Test | 1252 | |
| Recorded Test | 1307 | |
| O2 | 5.3 % | |
| CO | 0 PPM | |
| Eff | 85.8 % | |
| CO2 | 8.8 % | |
| T-Stk | 267 °F | |
| T-Air | 89.2 °F | |
| EA | 30.5 % | |
| CO (15) | 0 PPM | |
| NO | 55 PPM | |
| NO2 | 1 PPM | |
| NOX | 57 PPM | |
| SO2 | *** PPM | |
| NO (15) | 21 PPM | |
| NOX (15) | 22 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | 22 | |

**Signature:** Ken Wells

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST C

| Date: 5/3/21 | GT 1 DB | GT |
|---|---|---|
| Start Test | 1352 | |
| Recorded Test | 1355 | |
| O2 | 13.4 % | |
| CO | 1 PPM | |
| Eff | 80.7 % | |
| CO2 | 4.2 % | |
| T-Stk | 270 °F | |
| T-Air | 78.5 °F | |
| EA | 160.3 % | |
| CO (15) | 1 PPM | |
| NO | 18.6 PPM | |
| NO2 | 2.2 PPM | |
| NOX | 20.8 PPM | |
| SO2 | *** PPM | |
| NO (15) | 15 PPM | |
| NOX (15) | 16 PPM | |
| SO2 (15 | *** PPM | |
| Mega Watts | 7.7 | |
| KSCF/hour | 40 | |

**Signature:** Ken Williams

TEMP

GT 1 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:55:38 PM
Date: 05/03/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.4 % |
| CO | 1 ppm |
| Eff | 80.7 % |
| $CO_2$ | 4.2 % |
| T-Stk | 270 °F |
| T-Air | 78.5 °F |
| EA | 160.3 % |
| CO(15) | 1 ppm |
| NO | 18.6 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 20.8 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.75 LPM |

Comments:
MW: 7.7
KSCF/hr: 40

TEMP BOILER

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:10:02 PM
Date: 05/03/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 8.6 % |
| CO | 0 ppm |
| Eff | 98.1 % |
| $CO_2$ | 7.0 % |
| T-Stk | 91 °F |
| T-Air | 81.8 °F |
| EA | 61.9 % |
| CO(15) | 0 ppm |
| NO | 19.4 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 19.4 ppm |
| NO(15) | 9 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 9 ppm |
| Flow | 0.76 LPM |

Comments:
Klbs/hr: 29

| Date: 5/3/21 | ~~BLR 2~~ | B |
|---|---|---|
| Start Test | ~~1~~ 1355 | |
| Recorded Test | 1410 | |
| O2 | 8.6 % | |
| CO | 0 PPM | |
| Eff | 98.1 % | |
| CO2 | 7.0 % | |
| T-Stk | 91 °F | |
| T-Air | 81.8 °F | |
| EA | 61.9 % | |
| CO (15) | 0 PPM | |
| NO | 19.4 PPM | |
| NO2 | 0.0 PPM | |
| NOX | 19.4 PPM | |
| SO2 | *** PPM | |
| NO (15) | 9 PPM | |
| NOX (15) | 9 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | 29 | |

**Signature:** Ken Williams

T2

LR 4

UTES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/6/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0413 |
| Recorded Test | | | | 0420 |
| O2 | | | | 13.8 |
| CO | | | | 2 PPM |
| Eff | | | | 75.9 % |
| CO2 | | | | 4.0 % |
| T-Stk | | | | 339° F |
| T-Air | | | | 69.8° F |
| EA | | | | 173.0 % |
| CO (15) | | | | 2 PPM |
| NO | | | | 21 PPM |
| NO2 | | | | 3 PPM |
| NOX | | | | 25 PPM |
| SO2 | | | | XXX |
| NO (15) | | | | 18 PPM |
| NOX (15) | | | | 20 PPM |
| SO2 (15 | | | | XXX |
| Mega Watts | | | | 9.4 |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

#2 GT
NO DUCT
MW = 9.4

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:20:46 AM
Date: 05/06/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.8 % |
| CO | 2 ppm |
| Eff | 75.9 % |
| $CO_2$ | 4.0 % |
| T-Stk | 339 °F |
| T-Air | 69.8 °F |
| EA | 173.0 % |
| CO(15) | 2 ppm |
| NO | 21 ppm |
| $NO_2$ | 3 ppm |
| NOx | 25 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | **** ppm |

Comments:

TEST RESULTS

TEST RESULTS

#2 GT
NO OJCT
MW = 9.4

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/6/2021 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0413 |
| Recorded Test | | | | 0420 |
| O2 | | | | 13.8 |
| CO | | | | 2 PPM |
| Eff | | | | 75.9 % |
| CO2 | | | | 4.0 % |
| T-Stk | | | | 339° F |
| T-Air | | | | 69.8° F |
| EA | | | | 173.0 % |
| CO (15) | | | | 2 PPM |
| NO | | | | 21 PPM |
| NO2 | | | | 3 PPM |
| NOX | | | | 25 PPM |
| SO2 | | | | XXX |
| NO (15) | | | | 18 PPM |
| NOX (15) | | | | 20 PPM |
| SO2 (15 | | | | XXX |
| Mega Watts | | | | 9.4 |
| KSCF/hour | | | | |

Signature:

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

Signature:

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:20:46 AM
Date: 05/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.8 % |
| CO | 2 ppm |
| Eff | 75.9 % |
| $CO_2$ | 4.0 % |
| T-Stk | 339 °F |
| T-Air | 69.8 °F |
| EA | 173.0 % |
| CO(15) | 2 ppm |
| NO | 21 ppm |
| $NO_2$ | 3 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

T TEST RESULTS

TEST RESULTS

#2 HRSG
DB

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1450 | | |
| Recorded Test | | 1459 | | |
| O2 | | 15.9% | | |
| CO | | 5PPM | | |
| Eff | | 74.2% | | |
| CO2 | | 2.9% | | |
| T-Stk | | 293°F | | |
| T-Air | | 72.9°F | | |
| EA | | 250% | | |
| CO (15) | | 6PPM | | |
| NO | | 14.9 PPM | | |
| NO2 | | 4.4 PPM | | |
| NOX | | 19.4 PPM | | |
| SO2 | | *** | | |
| NO (15) | | 17PPM | | |
| NOX (15) | | 23PPM | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.75MW | | |
| KSCF/hour | | 17 KSCF | | |

**Signature:** LISA SOUSA 5/6/21

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:59:21 PM
Date: 05/06/21

Fuel
NGAS

| | |
|---|---|
| $O_{2i}$ | 15.9 % |
| CO | 5 ppm |
| Eff | 74.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 293 °F |
| T-Air | 72.9 °F |
| EA | 250.0 % |
| CO(15) | 6 ppm |
| NO | 14.9 ppm |
| $NO_2$ | 4.4 ppm |
| NOx | 19.4 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.75 LPM |

Comments:

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

#2 GT
NO. DUCT
MW - 9.1

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:14:02 AM
Date: 05/07/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.1 % |
| CO | 3 ppm |
| Eff | 75.5 % |
| $CO_2$ | 3.8 % |
| T-Stk | 338 °F |
| T-Air | 72.0 °F |
| EA | 184.4 % |
| CO(15) | 3 ppm |
| NO | 20 ppm |
| $NO_2$ | 4 ppm |
| NOx | 23 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/7/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | ~~0408~~ | | 0408 |
| Recorded Test | | ~~0414~~ | | 0414 |
| O2 | | | | 14.1 % |
| CO | | | | 3 PPM |
| Eff | | | | 75.5 % |
| CO2 | | | | 3.8 % |
| T-Stk | | | | 338° F |
| T-Air | | | | 72.0° F |
| EA | | | | 184.4 % |
| CO (15) | | | | 3 PPM |
| NO | | | | 20 PPM |
| NO2 | | | | 4 PPM |
| NOX | | | | 23 PPM |
| SO2 | | | | XXX |
| NO (15) | | | | 17 PPM |
| NOX (15) | | | | 20 PPM |
| SO2 (15 | | | | XXX |
| Mega Watts | | | | 9.1 |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## SSION TEST COLLEGE PARK ENERGY

| | T 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| | | | | [redacted]1358 |
| | | | | 1403 |
| | | | | 15.9% |
| | | | | 0ppm |
| | | | | 67.6% |
| | | | | 2.8% |
| | | | | 384°F |
| | | | | 79.5°F |
| | | | | 250.0% |
| | | | | 0ppm |
| | | | | 13ppm |
| | | | | 3ppm |
| | | | | 15ppm |
| | | | | *** |
| | | | | 15ppm |
| | | | | 18ppm |
| | | | | *** |
| | | | | |
| | | | | |

n Poirier

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:03:01 PM
Date: 05/07/21 GT2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 67.6 % |
| $CO_2$ | 2.8 % |
| T-Stk | 384 °F |
| T-Air | 79.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 13 ppm |
| $NO_2$ | 3 ppm |
| NOx | 15 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | *** ppm |

Comments: 8.74 MW
8KSCFM

| | LR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 1 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:57:14 PM
Date: 05/10/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.0 % |
| CO | 1 ppm |
| Eff | 80.7 % |
| $CO_2$ | 3.9 % |
| T-Stk | 254 °F |
| T-Air | 74.2 °F |
| EA | 179.1 % |
| CO(15) | 1 ppm |
| NO | 19.5 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 22.5 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.75 LPM |

TEMP BOILER

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:45:28 PM
Date: 05/10/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.1 % |
| CO | 1 ppm |
| Eff | 100.0 % |
| $CO_2$ | 5.5 % |
| T-Stk | 70 °F |
| T-Air | 70.8 °F |
| EA | 100.5 % |
| CO(15) | 1 ppm |
| NO | 18.6 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 19.8 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.76 LPM |

## EMISSION TEST COLLE

| Date: 5/10/2021 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1254 | |
| Recorded Test | 1257 | |
| O2 | 14.0% | |
| CO | 1 PPM | |
| Eff | 80.7% | |
| CO2 | 3.9% | |
| T-Stk | 254 °F | |
| T-Air | 74.2 °F | |
| EA | 179.1% | |
| CO (15) | 1 PPM | |
| NO | 19.5 PPM | |
| NO2 | 3.0 PPM | |
| NOX | 22.5 PPM | |
| SO2 | *** PPM | |
| NO (15) | 17 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | *** PPM | |
| Mega Watts | 15 | |
| KSCF/hour | 8.3 | |

Comments:
MW : 15
KSCF : 8.3

Signature: Ken Williams
TEMP

| Date: 5/10/2021 | ~~BLR 2~~ | BLR 4 |
|---|---|---|
| Start Test | 1200 | |
| Recorded Test | 1245 | |
| O2 | 11.1% | |
| CO | 1 PPM | |
| Eff | 100.0% | |
| CO2 | 5.5% | |
| T-Stk | 70 °F | |
| T-Air | 70.8 °F | |
| EA | 100.5% | |
| CO (15) | 1 PPM | |
| NO | 18.6 PPM | |
| NO2 | 1.2 PPM | |
| NOX | 19.8 PPM | |
| SO2 | *** PPM | |
| NO (15) | 11 PPM | |
| NOX (15) | 12 PPM | |
| SO2 (15 | *** PPM | |
| K lbs/hour | 23 | |

Comments:
Klbs/hr : 23

Signature: Ken Williams

UTES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0600 |
| Recorded Test | | | | 0608 |
| O2 | | | | 15.6 % |
| CO | | | | 1 ppm |
| Eff | | | | 28.0 % |
| CO2 | | | | 3.0 % |
| T-Stk | | | | 937°F |
| T-Air | | | | 77.4°F |
| EA | | | | 250.0 % |
| CO (15) | | | | 1 ppm |
| NO | | | | 28 ppm |
| NO2 | | | | 0 ppm |
| NOX | | | | 28 ppm |
| SO2 | | | | *** |
| NO (15) | | | | 31 ppm |
| NOX (15) | | | | 31 ppm |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 10.1 |
| KSCF/hour | | | [redacted] | |

**Signature:** Donald J. Green

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:08:19 AM
Date: 05/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 1 ppm |
| Eff | 28.0 % |
| $CO_2$ | 3.0 % |
| T-Stk | 937 °F |
| T-Air | 77.4 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 28 ppm |
| $NO_2$ | 0 ppm |
| NOx | 28 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 31 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW- 10.1
DAT- 53°
Donald J. Green

T TEST RESULTS

T TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/11/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1808 |
| Recorded Test | | | | 1813 |
| O2 | | | | 15.7 % |
| CO | | | | 1 PPm |
| Eff | | | | 26.9% |
| CO2 | | | | 2.9 % |
| T-Stk | | | | 948 °F |
| T-Air | | | | 80.4 °F |
| EA | | | | 250.0% |
| CO (15) | | | | 1 PPm |
| NO | | | | 28 PPm |
| NO2 | | | | 0 PPm |
| NOX | | | | 28 PPm |
| SO2 | | | | *** |
| NO (15) | | | | 32 PPm |
| NOX (15) | | | | 32 PPm |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 9.1 |
| KSCF/hour | | | | |

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

GT2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:13:19 PM
Date: 05/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.7 % |
| CO | 1 ppm |
| Eff | 26.9 % |
| $CO_2$ | 2.9 % |
| T-Stk | 948 °F |
| T-Air | 80.4 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 28 ppm |
| $NO_2$ | 0 ppm |
| NOx | 28 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 32 ppm |
| $SO_2$(15) | *** ppm |

Comments: OAT 66°
MW 9.1
Evelyn Carter 23

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:37:03 AM
Date: 05/12/21 10.1 MW

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 0 ppm |
| Eff | 27.7 % |
| $CO_2$ | 2.9 % |
| T-Stk | 929 °F |
| T-Air | 74.7 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 26 ppm |
| $NO_2$ | 0 ppm |
| NOx | 26 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 29 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 30 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

**ION TEST COLLEGE PARK ENERGY**

| DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|
| | | | 0637 |
| | | | 0637 |
| | | | 15.7% |
| | | | 0ppm |
| | | | 27.7% |
| | | | 2.9% |
| | | | 979°F |
| | | | 74.7°F |
| | | | 250.0% |
| | | | 1ppm |
| | | | 26ppm |
| | | | 0ppm |
| | | | 26ppm |
| | | | *** |
| | | | 29ppm |
| | | | 30ppm |
| | | | *** |
| | | | 10.1MW |
| | | | |

in Points

| LR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | | |
|---|---|---|---|---|
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/12/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 1753 | |
| Recorded Test | ~~175~~ | | 1756 | |
| O2 | | | 15.8 % | |
| CO | | | 0 PPM | |
| Eff | | | 26.2 % | |
| CO2 | | | 2.9 % | |
| T-Stk | | | 946 °F | |
| T-Air | | | 82.9 °F | |
| EA | | | 250.0% | |
| CO (15) | | | 1 PPM | |
| NO | | | 27 PPM | |
| NO2 | | | 0 PPM | |
| NOX | | | 27 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 31 PPM | |
| NOX (15) | | | 31 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 9.1 | |
| KSCF/hour | | | | |

**Signature:** Ken Will

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:56:23 PM
Date: 05/12/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.8 % |
| CO | 0 ppm |
| Eff | 26.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 946 °F |
| T-Air | 82.9 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 27 ppm |
| $NO_2$ | 0 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 31 ppm |
| $SO_2$(15) | *** ppm |

Comments:
MW : 9.0 9.1
KSCFH/hr :

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

TO THIS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/13/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | 1814 |
| O2 | | | | 1820 |
| CO | | | | 15.8 % |
| Eff | | | | 0 PPM |
| CO2 | | | | 70.6 % |
| T-Stk | | | | 2.9 % |
| T-Air | | | | 356 °F |
| EA | | | | 85.4 °F |
| CO (15) | | | | 250 % |
| NO | | | | 0 PPM |
| NO2 | | | | 23 PPM |
| NOX | | | | 4 PPM |
| SO2 | | | | 27 PPM |
| NO (15) | | | | XXX |
| NOX (15) | | | | 26 PPM |
| SO2 (15 | | | | 31 PPM |
| Mega Watts | | | | XXX |
| KSCF/hour | | | | 8.9 |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

NO 2 NO DUCT

MW = 8.7

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 06:20:28 PM
Date: 05/13/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.8 % |
| CO | 0 ppm |
| Eff | 70.6 % |
| $CO_2$ | 2.9 % |
| T-Stk | 356 °F |
| T-Air | 85.4 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 23 ppm |
| $NO_2$ | 4 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 26 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 31 ppm |
| $SO_2$(15) | *** ppm |

Comments:

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0450 |
| Recorded Test | | | | 0455 |
| O2 | | | | 15.8% |
| CO | | | | 0 PPM |
| Eff | | | | 68.5% |
| CO2 | | | | 2.9% |
| T-Stk | | | | 378°F |
| T-Air | | | | 77.6°F |
| EA | | | | 250.0% |
| CO (15) | | | | 0 PPM |
| NO | | | | 18 PPM |
| NO2 | | | | 3 PPM |
| NOX | | | | 21 PPM |
| SO2 | | | | *** |
| NO (15) | | | | 21 PPM |
| NOX (15) | | | | 24 PPM |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 9.54 |
| KSCF/hour | | | | |

**Signature:** JOSH SOUSA

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

WITH OUT D-B

GT# 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 04:55:16 AM
Date: 05/14/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.8 % |
| CO | 0 ppm |
| Eff | 68.5 % |
| $CO_2$ | 2.9 % |
| T-Stk | 378 °F |
| T-Air | 77.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 18 ppm |
| $NO_2$ | 3 ppm |
| NOx | 21 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | *** ppm |

Comments:

**WAIT 15 MINUTES AND THEN PRINT TEST RESULTS**

**M TO THIS SHEET**

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 05:50 |
| Recorded Test | | | | 05:09 |
| O2 | | | | 15.9% |
| CO | | | | 0 PPM |
| Eff | | | | 66.4% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 401°F |
| T-Air | | | | 78.2F |
| EA | | | | 250.0% |
| CO (15) | | | | 0 PPM |
| NO | | | | 19 PPM |
| NO2 | | | | 3 PPM |
| NOX | | | | 22 PPM |
| SO2 | | | | *** |
| NO (15) | | | | 22 PPM |
| NOX (15) | | | | 26 PPM |
| SO2 (15 | | | | *** |
| Mega Watts | | | | 9.55 |
| KSCF/hour | | | | |

**Signature:** JOSH SOUSA

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:09:45 AM
Date: 05/15/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 66.4 % |
| $CO_2$ | 2.8 % |
| T-Stk | 401 °F |
| T-Air | 78.2 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 26 ppm |
| $SO_2$(15) | *** ppm |

Comments:

MW = 9.55
WITHOUT D.B

M TO THIS SHEET
TES AND THEN PRINT TEST RESULTS
TES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 05/16/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 05:10 |
| Recorded Test | | | | 05:22 |
| O2 | | | | 16.0% |
| CO | | | | 0 PPM |
| Eff | | | | 67.6% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 376°F |
| T-Air | | | | 77.5°F |
| EA | | | | 250.0% |
| CO (15) | | | | 0 PPM |
| NO | | | | 16 PPM |
| NO2 | | | | 3 PPM |
| NOX | | | | 19 PPM |
| SO2 | | | | * * * |
| NO (15) | | | | 20 PPM |
| NOX (15) | | | | 23 PPM |
| SO2 (15 | | | | ~~* * 8.8 MW~~ |
| Mega Watts | | | | 8.8 MW |
| KSCF/hour | | | | |

**Signature:** JOSH SOUSA

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:22:29 AM
Date: 05/16/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.0 % |
| CO | 0 ppm |
| Eff | 67.6 % |
| $CO_2$ | 2.8 % |
| T-Stk | 376 °F |
| T-Air | 77.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 3 ppm |
| NOx | 19 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | **** ppm |

Comments:

#2 GT NO DB

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0515 |
| Recorded Test | | | | 0524 |
| O2 | | | | 15.8% |
| CO | | | | 0 PPM |
| Eff | | | | 68.7% |
| CO2 | | | | 2.9% |
| T-Stk | | | | 370°F |
| T-Air | | | | 75°F |
| EA | | | | 250% |
| CO (15) | | | | 0 PPM |
| NO | | | | 19 PPM |
| NO2 | | | | 4 PPM |
| NOX | | | | 23 PPM |
| SO2 | | | | ~~AAA~~ |
| NO (15) | | | | 22 PPM |
| NOX (15) | | | | 27 PPM |
| SO2 (15 | | | | ~~AAA~~ |
| Mega Watts | | | | 9.44 MW |
| KSCF/hour | | | | |

**Signature:** JOSH SOUSA JOSH SOUSA

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:24:11 AM
Date: 05/17/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 68.7 % |
| $CO_2$ | 2.9 % |
| T-Stk | 370 °F |
| T-Air | 75.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 19 ppm |
| $NO_2$ | 4 ppm |
| NOx | 23 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 27 ppm |
| $SO_2$(15) | *** ppm |

Comments: #2 GT

NO DB 5/17/21

'UTES AND THEN PRINT TEST RESULTS

'S AND THEN PRINT TEST RESULTS

TO THIS SHEET

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 05/17/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1730 | | | 1725 |
| Recorded Test | 1737 | | | 1730 |
| O2 | 15.8% | | | 15.9% |
| CO | 5ppm | | | 0ppm |
| Eff | 70.9% | | | 68.5% |
| CO2 | 2.9 % | | | 2.8% |
| T-Stk | 346°F | | | 370°F |
| T-Air | 80.1°F | | | 76.7°F |
| EA | 250.0% | | | 250% |
| CO (15) | 6ppm | | | 0ppm |
| NO | 15ppm | | | 17ppm |
| NO2 | 4ppm | | | 3ppm |
| NOX | 19ppm | | | 19ppm |
| SO2 | * * * | | | * * * |
| NO (15) | 17ppm | | | 20ppm |
| NOX (15) | 22ppm | | | 23ppm |
| SO2 (15 | * * * | | | * * * |
| Mega Watts | 7.9 MW | | | 8.4 MW |
| KSCF/hour | 16KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:37:26 PM
Date: 05:17/21

GT#1
7.9 MW
16 KSCFH

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 5 ppm |
| Eff | 70.9 % |
| $CO_2$ | 2.9 % |
| T-Stk | 346 °F |
| T-Air | 80.1 °F |
| EA | 250.0 % |
| CO(15) | 6 ppm |
| NO | 15 ppm |
| $NO_2$ | 4 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:32:48 PM
Date: 05/17/21

GT#2
W/NO DB
8.4 MW

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 68.5 % |
| $CO_2$ | 2.8 % |
| T-Stk | 370 °F |
| T-Air | 78.7 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 17 ppm |
| $NO_2$ | 3 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 23 ppm |
| $SO_2$(15) | *** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/18/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0533 | |
| Recorded Test | | | 0536 | |
| O2 | | | 15.8% | |
| CO | | | 0 PPM | |
| Eff | | | 68.5% | |
| CO2 | | | 2.9 % | |
| T-Stk | | | 375 °F | |
| T-Air | | | 78.1 °F | |
| EA | | | 250.0 % | |
| CO (15) | | | 1 PPM | |
| NO | | | 19 PPM | |
| NO2 | | | 3 PPM | |
| NOX | | | 22 PPM | |
| SO2 | | | *** PPM | |
| NO (15) | | | 22 PPM | |
| NOX (15) | | | 26 PPM | |
| SO2 (15 | | | *** PPM | |
| Mega Watts | | | 9.4 | |
| KSCF/hour | | | | |

**Signature:** Ken Lull

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

#N $ GT 1

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 05:36:31 AM
Date: 05/18/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 68.5 % |
| $CO_2$ | 2.9 % |
| T-Stk | 375 °F |
| T-Air | 78.1 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 19 ppm |
| $NO_2$ | 3 ppm |
| NOx | 22 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 26 ppm |
| $SO_2$(15) | *** ppm |

Comments:
MW: 9.4

THIS SHEET AND THEN PRINT TEST RESULTS AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 05/24/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1347 | | | 1400 |
| Recorded Test | 1354 | | | 1407 |
| O2 | 15.1% | | | 15.7% |
| CO | 6 ppm | | | 0ppm |
| Eff | 78.0% | | | 73.8% |
| CO2 | 3.3% | | | 2.9% |
| T-Stk | 275°F | | | 317°F |
| T-Air | 80.8°F | | | 86°F |
| EA | 229.8% | | | 250% |
| CO (15) | 6ppm | | | 0ppm |
| NO | 12ppm | | | 16ppm |
| NO2 | 5ppm | | | 3ppm |
| NOX | 17ppm | | | 19ppm |
| SO2 | *** | | | *** |
| NO (15) | 12ppm | | | 18ppm |
| NOX (15) | 18ppm | | | 22ppm |
| SO2 (15 | *** | | | *** |
| Mega Watts | 8.3 MW | | | 8.7MW |
| KSCF/hour | 19 KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:54:50 PM
Date: 05/24/21

GT#1
8.3MW
19KSCFH

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.1 % |
| CO | 6 ppm |
| Eff | 78.0 % |
| $CO_2$ | 3.3 % |
| T-STK | 275 °F |
| T-AIR | 80.8 °F |
| EA | 229.8 % |
| CO(15) | 6 ppm |
| NO | 12 ppm |
| $NO_2$ | 5 ppm |
| NOx | 17 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.31 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 02:07:01 PM
Date: 05/24/21

GT#2
8.7MW
W/ NO DB

Fuel NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 0 ppm |
| Eff | 73.8 % |
| $CO_2$ | 2.9 % |
| T-STK | 317 °F |
| T-AIR | 86.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16 ppm |
| $NO_2$ | 3 ppm |
| NOx | 19 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.08 inwc

Comments:

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 05/31/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1249 | | | 1239 |
| Recorded Test | 1255 | | | 1245 |
| O2 | 14.8 % | | | 15.9 % |
| CO | 4 PPM | | | 0 PPM |
| Eff | 76.5% | | | 74.8 % |
| CO2 | 3.4 % | | | 2.8 % |
| T-Stk | 309°F | | | 287°F |
| T-Air | 84.3°F | | | 76.7°F |
| EA | 217.2% | | | 250 % |
| CO (15) | 4 PPM | | | 0 PPM |
| NO | 19 PPM | | | 18 PPM |
| NO2 | 4 PPM | | | 4 PPM |
| NOX | 23 PPM | | | 21 PPM |
| SO2 | * * * | | | * * * |
| NO (15) | 19 PPM | | | 21 PPM |
| NOX (15) | 22 PPM | | | 25 PPM |
| SO2 (15 | * * * | | | * * * |
| Mega Watts | 7.9 MW | | | 8.3 MW |
| KSCF/hour | 15 KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:55:12 PM #1 GT
Date: 05/31/21 W/DB
Fuel NGAS 7.9 MW
15 KSCFH

| | |
|---|---|
| $O_2$: | 14.8 % |
| CO | 4 ppm |
| Eff | 76.5 % |
| $CO_2$ | 3.4 % |
| T-STK | 309 °F |
| T-AIR | 84.3 °F |
| EA | 217.2 % |
| CO(15) | 4 ppm |
| NO | 19 ppm |
| $NO_2$ | 4 ppm |
| NOx | 23 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.23 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:45:57 PM #2 GT
Date: 05/31/21 W/NO DB
Fuel NGAS 8.3 MW

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 74.8 % |
| $CO_2$ | 2.8 % |
| T-STK | 287 °F |
| T-AIR | 76.7 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 18 ppm |
| $NO_2$ | 4 ppm |
| NOx | 21 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.06 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 06/07/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0738 | | | 0745 |
| Recorded Test | 0744 | | | 0750 |
| O2 | 13.3 % | | | 15.9 % |
| CO | 3ppm | | | 0ppm |
| Eff | 80 % | | | 74.3% |
| CO2 | 4.3 % | | | 2.8% |
| T-Stk | 298°F | | | 312 °F |
| T-Air | 90.2°F | | | 94.9°F |
| EA | 154.4% | | | 250 % |
| CO (15) | 2ppm | | | 0ppm |
| NO | 22ppm | | | 14ppm |
| NO2 | 2ppm | | | 3ppm |
| NOX | 24ppm | | | 16ppm |
| SO2 | * * * | | | * * * |
| NO (15) | 17ppm | | | 16ppm |
| NOX (15) | 18 ppm | | | 19 ppm |
| SO2 (15 | * * * | | | * * * |
| Mega Watts | 7.2 MW | | | 7.5 MW |
| KSCF/hour | 32 KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 07:44:49 AM #1 GT
Date: 06/07/21 7.2 MW

Fuel
NGAS 32KSCFH

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 3 ppm |
| Eff | 80.0 % |
| $CO_2$ | 4.3 % |
| T-STK | 298 °F |
| T-AIR | 90.2 °F |
| EA | 154.4 % |
| CO(15) | 2 ppm |
| NO | 22 ppm |
| $NO_2$ | 2 ppm |
| NOx | 24 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | ***** ppm |

Draft Reading
-0.19 inwc

Comments:

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 07:50:00 AM #2 GT
Date: 06/07/21 W/NO DB

Fuel
NGAS 7.5 MW

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 74.3 % |
| $CO_2$ | 2.8 % |
| T-STK | 312 °F |
| T-AIR | 94.9 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 16 ppm |
| $SO_2$ | ***** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | ***** ppm |

Draft Reading
-0.01 inwc

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 6/14/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1512 | | | 1516 |
| Recorded Test | 1515 | | | 1519 |
| O2 | 15.1 % | | | 16.1 % |
| CO | 5 PPM | | | 0 PPM |
| Eff | 76.6 % | | | --- % |
| CO2 | 3.3% | | | --- % |
| T-Stk | 305 °F | | | 293 °F |
| T-Air | 91.3°F | | | 96.0 °F |
| EA | 232.5% | | | --- % |
| CO (15) | 5 PPM | | | -- PPM |
| NO | 14 PPM | | | 14 PPM |
| NO2 | 3 PPM | | | 2 PPM |
| NOX | 17 PPM | | | 17 PPM |
| SO2 | *** PPM | | | *** PPM |
| NO (15) | 15 PPM | | | --- PPM |
| NOX (15) | 18 PPM | | | 20.8 PPM |
| SO2 (15 | *** PPM | | | *** PPM |
| Mega Watts | 6.9 | | | 7.0 |
| KSCF/hour | | | | |

**Signature:** Ken Wall

| Date: 6/14/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 1515 | | |
| Recorded Test | | 1530 | | |
| O2 | | 5.5% | | |
| CO | | 0 PPM | | |
| Eff | | 81.0% | | |
| CO2 | | 8.7% | | |
| T-Stk | | 445°F | | |
| T-Air | | 102.3 °F | | |
| EA | | 31.7% | | |
| CO (15) | | 0 PPM | | |
| NO | | 84 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | 84 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 32 PPM | | |
| NOX (15) | | 32 PPM | | |
| SO2 (15 | | *** PPM | | |
| K lbs/hour | | 34 | | |

**Signature:** Ken Wall

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1 DB

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 03:15:08 PM
Date: 06/14/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 5 ppm |
| Eff | 76.6 % |
| $CO_2$ | 3.3 % |
| T-STK | 305 °F |
| T-AIR | 91.3 °F |
| EA | 232.5 % |
| CO(15) | 5 ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 17 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.25 inwc

Comments:

MW: 6.9
KSCF: 0

GT2

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 03:19:51 PM
Date: 06/14/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.1 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-STK | 293 °F |
| T-AIR | 96.0 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 14 ppm |
| $NO_2$ | 2 ppm |
| NOx | 17 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.06 inwc

Comments:

MW: 7.0

BLR4

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 03:30:10 PM
Date: 06/14/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 81.0 % |
| $CO_2$ | 8.7 % |
| T-STK | 445 °F |
| T-AIR | 102.3 °F |
| EA | 31.7 % |
| CO(15) | 0 ppm |
| NO | 84 ppm |
| $NO_2$ | 0 ppm |
| NOx | 84 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 32 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.37 inwc

Comments:

Klbs/hr: 34

GT1 DB

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 08:18:13 AM
Date: 06/21/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.2 % |
| CO | 6 ppm |
| Eff | 75.8 % |
| $CO_2$ | 3.2 % |
| T-STK | 311 °F |
| T-AIR | 87.2 °F |
| EA | 234.5 % |
| CO(15) | 6 ppm |
| NO | 13 ppm |
| $NO_2$ | 4 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 17 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-0.22 inwc

Comments:
MW: 7.2
KSCF: 10

GT2

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 08:22:18 AM
Date: 06/21/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 74.8 % |
| $CO_2$ | 2.8 % |
| T-STK | 299 °F |
| T-AIR | 90.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12 ppm |
| $NO_2$ | 3 ppm |
| NOx | 14 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 17 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-0.05 inwc

Comments:
MW: 7.5
~~KSCF:~~

BLR4

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 08:35:50 AM
Date: 06/21/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.9 % |
| CO | 0 ppm |
| Eff | 80.8 % |
| $CO_2$ | 8.4 % |
| T-STK | 442 °F |
| T-AIR | 101.0 °F |
| EA | 35.3 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 0 ppm |
| NOx | 65 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 25 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 26 ppm |
| $SO_2$ (15) | *** ppm |

Draft Reading
-0.38 inwc

Comments:
Klbs/hr: 33

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 6/21/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 08 15 | | | 0819 |
| Recorded Test | 08 18 | | | 0822 |
| O2 | 15.2 % | | | 15.9 % |
| CO | 6 PPM | | | 0 PPM |
| Eff | 75.8 % | | | 74.8 % |
| CO2 | 3.2 % | | | 2.8 % |
| T-Stk | 311 °F | | | 299 °F |
| T-Air | 87.2 °F | | | 90.5 °F |
| EA | 234.5 % | | | 250.0 % |
| CO (15) | 6 PPM | | | 0 PPM |
| NO | 13 PPM | | | 12 PPM |
| NO2 | 4 PPM | | | 3 PPM |
| NOX | 16 PPM | | | 14 PPM |
| SO2 | *** PPM | | | *** PPM |
| NO (15) | 13 PPM | | | 14 PPM |
| NOX (15) | 17 PPM | | | 17 PPM |
| SO2 (15 | *** PPM | | | *** PPM |
| Mega Watts | 7.2 | | | 7.5 |
| KSCF/hour | 10 | | | |

**Signature:** Ken Will

| Date: 6/21/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0820 | | |
| Recorded Test | | 0835 | | |
| O2 | | 5.9 % | | |
| CO | | 0 PPM | | |
| Eff | | 80.8 % | | |
| CO2 | | 8.4 % | | |
| T-Stk | | 442 °F | | |
| T-Air | | 101.0 °F | | |
| EA | | 35.3 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 64 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | 65 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 25 PPM | | |
| NOX (15) | | 26 PPM | | |
| SO2 (15 | | *** PPM | | |
| K lbs/hour | | 33 | | |

**Signature:** Ken Will

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 6/28/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1620 | | | 1624 |
| Recorded Test | 1623 | | | 1627 |
| O2 | 15.1 % | | | 16.1 % |
| CO | 5 PPM | | | 1 PPM |
| Eff | 76.6 % | | | -- % |
| CO2 | 3.3 % | | | -- % |
| T-Stk | 303 °F | | | 301 °F |
| T-Air | 87.8 °F | | | 92.3 °F |
| EA | 229.8 % | | | --- % |
| CO (15) | 5 PPM | | | --- PPM |
| NO | 16 PPM | | | 14 PPM |
| NO2 | 4 PPM | | | 2 PPM |
| NOX | 20 PPM | | | 16 PPM |
| SO2 | *** PPM | | | *** PPM |
| NO (15) | 16 PPM | | | |
| NOX (15) | 20 PPM | | | 19.5 PPM |
| SO2 (15 | *** PPM | | | *** PPM |
| Mega Watts | 6.8 | | | 7 |
| KSCF/hour | 9 | | | |

**Signature:** Ken Wall

| Date: 6/28/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 1625 | | |
| Recorded Test | | 1640 | | |
| O2 | | 6.3 % | | |
| CO | | 0 PPM | | |
| Eff | | 81.2 % | | |
| CO2 | | 8.2 % | | |
| T-Stk | | 426 °F | | |
| T-Air | | 105.3 °F | | |
| EA | | 38.6 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 72 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | 72 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 29 PPM | | |
| NOX (15) | | 29 PPM | | |
| SO2 (15 | | *** PPM | | |
| K lbs/hour | | 27 | | |

**Signature:** Ken Wall

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1DB

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 04:23:11 PM
Date: 06/28/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.1 % |
| CO | 5 ppm |
| Eff | 76.6 % |
| $CO_2$ | 3.3 % |
| T-STK | 303 °F |
| T-AIR | 87.8 °F |
| EA | 229.8 % |
| CO(15) | 5 ppm |
| NO | 16 ppm |
| $NO_2$ | 4 ppm |
| NOx | 20 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 20 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.23 inwc

Comments:
MW 6.8
9

GT2

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 04:27:51 PM
Date: 06/28/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.1 % |
| CO | 1 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-STK | 301 °F |
| T-AIR | 92.3 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 14 ppm |
| $NO_2$ | 2 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.04 inwc

Comments:
MW 7

BLR 4

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 04:40:46 PM
Date: 06/28/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.3 % |
| CO | 0 ppm |
| Eff | 81.2 % |
| $CO_2$ | 8.2 % |
| T-STK | 426 °F |
| T-AIR | 105.3 °F |
| EA | 38.6 % |
| CO(15) | 0 ppm |
| NO | 72 ppm |
| $NO_2$ | 0 ppm |
| NOx | 72 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.32 inwc

Comments:
27

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

October 12, 2021

Mr. Steve Lang
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite
#715 1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Lang & Director:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of July 1, 2021 through September 30, 2021.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility July 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 240.10 | 0.00 | 30081.52 | 0.00 | | 705,550,000 | 0 | 737,970 | 0 | 0.0150 | 0.0000 | 0.0150 | 1.8199 | 0.0000 | 1.8199 | 0.0451 | 0.0000 | 0.0451 | 0.0902 | 0.0000 | 0.0902 | 0.0737 | 0.0000 | 0.0737 | 0.0737 | 0.0000 | 0.0737 |
| Turbine 2 | 719.60 | 0.00 | 90181.81 | 0.00 | | 909,100,000 | 0 | 950,873 | 0 | 0.0902 | 0.0000 | 0.0902 | 5.8167 | 0.0000 | 5.8167 | 0.6313 | 0.0000 | 0.6313 | 0.2705 | 0.0000 | 0.2705 | 0.1623 | 0.0000 | 0.1623 | 0.1623 | 0.0000 | 0.1623 |
| Duct Burner 1 | 237.80 | | 2552.12 | | | 80,160,000 | | 83,843 | | 0.0069 | | 0.0069 | 0.0166 | | 0.0166 | 0.0128 | | 0.0128 | 0.0008 | | 0.0008 | 0.0025 | | 0.0025 | 0.0025 | | 0.0025 |
| Duct Burner 2 | 478.20 | | 19642.94 | | | 210,380,000 | | 220,047 | | 0.0530 | | 0.0530 | 0.1277 | | 0.1277 | 0.0982 | | 0.0982 | 0.0058 | | 0.0058 | 0.0193 | | 0.0193 | 0.0193 | | 0.0193 |
| Boiler 2 | 542.10 | 0.00 | 21095.77 | 0.00 | | | | | | 0.0025 | 0.0000 | 0.0025 | 1.0722 | 0.0000 | 1.0722 | 0.0058 | 0.0000 | 0.0058 | 0.0062 | 0.0000 | 0.0062 | 0.0947 | 0.0000 | 0.0947 | 0.0947 | 0.0000 | 0.0947 |
| Boiler 4 | 59.00 | 0.00 | 1447.59 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0742 | 0.0000 | 0.0742 | 0.0016 | 0.0000 | 0.0016 | 0.0004 | 0.0000 | 0.0004 | 0.0044 | 0.0000 | 0.0044 | 0.0044 | 0.0000 | 0.0044 |
| Emerg. Gen. | | 0.00 | | 0.00 | 10.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 57.30 | 0.00 | 0.38 | 0.00 | | | | | | 0.0008 | 0.0000 | 0.0008 | 0.0071 | 0.0000 | 0.0071 | 0.0074 | 0.0000 | 0.0074 | 0.0001 | 0.0000 | 0.0001 | 0.0021 | 0.0000 | 0.0021 | 0.0021 | 0.0000 | 0.0021 |
| Emissions Total | | | | | | | | | | 0.1687 | 0.0000 | 0.1687 | 8.9344 | 0.0000 | 8.9344 | 0.8022 | 0.0000 | 0.8022 | 0.3741 | 0.0000 | 0.3741 | 0.3590 | 0.0000 | 0.3590 | 0.3590 | 0.0000 | 0.3590 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.22 | 127.83 | 9.83 | 5.59 | 6.04 | 6.05 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility August 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 744.00 | 0.00 | 93235.98 | 0.00 | | 794,690,000 | 0 | 831,206 | 0 | 0.0466 | 0.0000 | 0.0466 | 5.6408 | 0.0000 | 5.6408 | 0.1399 | 0.0000 | 0.1399 | 0.2797 | 0.0000 | 0.2797 | 0.2284 | 0.0000 | 0.2284 | 0.2284 | 0.0000 | 0.2284 |
| Turbine 2 | 110.10 | 0.00 | 10815.12 | 0.00 | | 865,110,000 | 0 | 904,862 | 0 | 0.0108 | 0.0000 | 0.0108 | 0.6976 | 0.0000 | 0.6976 | 0.0757 | 0.0000 | 0.0757 | 0.0324 | 0.0000 | 0.0324 | 0.0195 | 0.0000 | 0.0195 | 0.0195 | 0.0000 | 0.0195 |
| Duct Burner 1 | 718.40 | | 20385.57 | | | 99,650,000 | | 104,229 | | 0.0550 | | 0.0550 | 0.1325 | | 0.1325 | 0.1019 | | 0.1019 | 0.0060 | | 0.0060 | 0.0200 | | 0.0200 | 0.0200 | | 0.0200 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 208,570,000 | | 218,154 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 674.90 | 0.00 | 21505.78 | 0.00 | | | | | | 0.0026 | 0.0000 | 0.0026 | 1.0930 | 0.0000 | 1.0930 | 0.0059 | 0.0000 | 0.0059 | 0.0063 | 0.0000 | 0.0063 | 0.0966 | 0.0000 | 0.0966 | 0.0966 | 0.0000 | 0.0966 |
| Boiler 4 | 16.70 | 0.00 | 233.25 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0119 | 0.0000 | 0.0119 | 0.0003 | 0.0000 | 0.0003 | 0.0001 | 0.0000 | 0.0001 | 0.0007 | 0.0000 | 0.0007 | 0.0007 | 0.0000 | 0.0007 |
| Emerg. Gen. | | 0.70 | | 5.43 | 11.2 | | | | | | 0.0002 | 0.0002 | | 0.0087 | 0.0087 | | 0.0023 | 0.0023 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 30.90 | 0.00 | 0.13 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0025 | 0.0000 | 0.0025 | 0.0026 | 0.0000 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.0007 | 0.0000 | 0.0007 | 0.0007 | 0.0000 | 0.0007 |
| Emissions Total | | | | | | | | | | 0.1153 | 0.0002 | 0.1155 | 7.5783 | 0.0087 | 7.5870 | 0.3263 | 0.0023 | 0.3286 | 0.3246 | 0.0000 | 0.3246 | 0.3659 | 0.0002 | 0.3661 | 0.3659 | 0.0002 | 0.3661 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.26 | 125.45 | 9.68 | 5.71 | 5.80 | 5.80 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility September 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 720.00 | 0.00 | 90171.35 | 0.00 | | 880,900,000 | 0 | 921,377 | 0 | 0.0451 | 0.0000 | 0.0451 | 5.4554 | 0.0000 | 5.4554 | 0.1353 | 0.0000 | 0.1353 | 0.2705 | 0.0000 | 0.2705 | 0.2209 | 0.0000 | 0.2209 | 0.2209 | 0.0000 | 0.2209 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 787,200,000 | 0 | 823,372 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 719.80 | | 23774.44 | | | 122,380,000 | | 128,003 | | 0.0641 | | 0.0641 | 0.1545 | | 0.1545 | 0.1189 | | 0.1189 | 0.0070 | | 0.0070 | 0.0233 | | 0.0233 | 0.0233 | | 0.0233 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 177,260,000 | | 185,405 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 719.80 | 0.00 | 22675.15 | 0.00 | | | | | | 0.0027 | 0.0000 | 0.0027 | 1.1524 | 0.0000 | 1.1524 | 0.0063 | 0.0000 | 0.0063 | 0.0067 | 0.0000 | 0.0067 | 0.1018 | 0.0000 | 0.1018 | 0.1018 | 0.0000 | 0.1018 |
| Boiler 4 | 20.90 | 0.00 | 391.19 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0200 | 0.0000 | 0.0200 | 0.0004 | 0.0000 | 0.0004 | 0.0001 | 0.0000 | 0.0001 | 0.0012 | 0.0000 | 0.0012 | 0.0012 | 0.0000 | 0.0012 |
| Emerg. Gen. | | 0.00 | | 0.00 | 11.2 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 42.20 | 0.00 | 0.19 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0036 | 0.0000 | 0.0036 | 0.0038 | 0.0000 | 0.0038 | 0.0001 | 0.0000 | 0.0001 | 0.0011 | 0.0000 | 0.0011 | 0.0011 | 0.0000 | 0.0011 |
| Emissions Total | | | | | | | | | | 0.1124 | 0.0000 | 0.1124 | 6.7860 | 0.0000 | 6.7860 | 0.2646 | 0.0000 | 0.2646 | 0.2844 | 0.0000 | 0.2844 | 0.3483 | 0.0000 | 0.3483 | 0.3483 | 0.0000 | 0.3483 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 2.19 | 125.44 | 9.13 | 5.63 | 5.72 | 5.72 |
| | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PA

| Date: 07/05/21 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | 1243 | |
| Recorded Test | | 1247 | |
| O2 | | 13.3% | |
| CO | | 3 PPM | |
| Eff | | 81.9% | |
| CO2 | | 4.3% | |
| T-Stk | | 259°F | |
| T-Air | | 86.9°F | |
| EA | | 155.7% | |
| CO (15) | | 2 PPM | |
| NO | | 25 PPM | |
| NO2 | | 3 PPM | |
| NOX | | 27 PPM | |
| SO2 | | *** PPM | |
| NO (15) | | 19 PPM | |
| NOX (15) | | 21 PPM | |
| SO2 (15 | | *** PPM | |
| Mega Watts | | 7.25 | |
| KSCF/hour | | 49 | |

**Signature:** Ken Williams

| Date: 07/05/21 | BLR 2 | BLR 4 | B |
|---|---|---|---|
| Start Test | 1313 | | |
| Recorded Test | 1328 | | |
| O2 | 4.9% | | |
| CO | 0 PPM | | |
| Eff | 85.0% | | |
| CO2 | 9.0% | | |
| T-Stk | 325.°F | | |
| T-Air | 114.8 °F | | |
| EA | 27.3% | | |
| CO (15) | 0 PPM | | |
| NO | 60 PPM | | |
| NO2 | 0 PPM | | |
| NOX | 60 PPM | | |
| SO2 | *** PPM | | |
| NO (15) | 22 PPM | | |
| NOX (15) | 22 PPM | | |
| SO2 (15 | *** PPM | | |
| K lbs/hour | 30 | | |

**Signature:** Ken Williams

GT2 DB

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 12:47:18 PM
Date: 07/05/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.3 % |
| CO | 3 ppm |
| Eff | 81.9 % |
| $CO_2$ | 4.3 % |
| T-STK | 259 °F |
| T-AIR | 86.9 °F |
| EA | 155.7 % |
| CO(15) | 2 ppm |
| NO | 25 ppm |
| $NO_2$ | 3 ppm |
| NOx | 27 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.02 inwc

Comments:

MW: 7.25
KSCF: 49

BLR 2

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 01:28:56 PM
Date: 07/05/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.9 % |
| CO | 0 ppm |
| Eff | 85.0 % |
| $CO_2$ | 9.0 % |
| T-STK | 325 °F |
| T-AIR | 114.8 °F |
| EA | 27.3 % |
| CO(15) | 0 ppm |
| NO | 60 ppm |
| $NO_2$ | 0 ppm |
| NOx | 60 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 22 ppm |
| $SO_2$(15) | **** ppm |

Draft Reading
-0.60 inwc

Comments:

K lbs/hr: 30

EEN PRINT TEST RESULTS

EN PRINT TEST RESULTS

EET

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | See | 10:24 |
| Recorded Test | | 10:29 |
| O2 | | 13.3% |
| CO | | 5 ppm |
| Eff | | 81.5% |
| CO2 | | 4.3% |
| T-Stk | | 263°F |
| T-Air | | 83.8°F |
| EA | | 154.9% |
| CO (15) | | 4 ppm |
| NO | | 21 ppm |
| NO2 | | 3 ppm |
| NOX | | 24 ppm |
| SO2 | | *** |
| NO (15) | | 16 ppm |
| NOX (15) | | 18 ppm |
| SO2 (15 | | *** |
| Mega Watts | | 7.4 MW |
| KSCF/hour | ↓ | 416 KSCF |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:29:36 AM
Date: 07/12/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 5 ppm |
| Eff | 81.5 % |
| $CO_2$ | 4.3 % |
| T-STK | 263 °F |
| T-AIR | 83.8 °F |
| EA | 154.9 % |
| CO(15) | 4 ppm |
| NO | 21 ppm |
| $NO_2$ | 3 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.02 inwc

Comments: HRSG #2 W/ D.B.

BACHARACH

BACHARACH, INC.
PCA 2
SN: RP1001

Time: 10:55:01 AM
Date: 07/12/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.5 % |
| CO | 1 ppm |
| Eff | 84.9 % |
| $CO_2$ | 8.7 % |
| T-STK | 315 °F |
| T-AIR | 106.2 °F |
| EA | 31.6 % |
| CO(15) | 0 ppm |
| NO | 49 ppm |
| $NO_2$ | 0 ppm |
| NOx | 49 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Draft Reading
-0.69 inwc

Comments: Boiler #2

TEST RESULTS

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 10:40 | See |
| Recorded Test | 10:55 | |
| O2 | 5.5% | |
| CO | 1 ppm | |
| Eff | 84.9% | |
| CO2 | 8.7% | |
| T-Stk | 315°F | |
| T-Air | 106.2°F | |
| EA | 31.6% | |
| CO (15) | 0 ppm | |
| NO | 49 ppm | |
| NO2 | 0 ppm | |
| NOX | 49 ppm | |
| SO2 | *** | |
| NO (15) | 19 ppm | |
| NOX (15) | 19 ppm | |
| SO2 (15 | *** | |
| K lbs/hour | 24.23 | ↓ |

**Signature:**

TEST RESULTS

.....
.....
.....

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 10:25:00 AM
Date: 07/19/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.6 % |
| CO | 1 ppm |
| Eff | 82.5 % |
| $CO_2$ | 5.2 % |
| T-Stk | 294 °F |
| T-Air | 102.6 °F |
| EA | 111.2 % |
| CO(15) | 0 ppm |
| NO | 38 ppm |
| $NO_2$ | 1 ppm |
| NOx | 39 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 24 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 25 ppm |
| $SO_2$(15) | **** ppm |

Comments:
#2 BOILER
12KPPH

.....
.....
.....

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:57:43 AM
Date: 07/19/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.8 % |
| CO | 4 ppm |
| Eff | 80.4 % |
| $CO_2$ | 4.0 % |
| T-Stk | 269 °F |
| T-Air | 80.6 °F |
| EA | 171.2 % |
| CO(15) | 3 ppm |
| NO | 20 ppm |
| $NO_2$ | 3 ppm |
| NOx | 23 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | **** ppm |

Comments:
#2 GT W/DB
7.6 MW
38 KSCFH

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 07/19/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0950 | | |
| Recorded Test | | 0957 | | |
| O2 | | 13.8 % | | |
| CO | | 4 ppm | | |
| Eff | | 80.4% | | |
| CO2 | | 4 % | | |
| T-Stk | | 269°F | | |
| T-Air | | 80.6°F | | |
| EA | | 171.2% | | |
| CO (15) | | 3 ppm | | |
| NO | | 20 ppm | | |
| NO2 | | 3 ppm | | |
| NOX | | 23 ppm | | |
| SO2 | | * * * | | |
| NO (15) | | 17 ppm | | |
| NOX (15) | | 19 ppm | | |
| SO2 (15 | | * * * | | |
| Mega Watts | | 7.6 MW | | |
| KSCF/hour | | 38 KSCFH | | |

**Signature:**

| Date: 07/19/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1006 | | | |
| Recorded Test | 1025 | | | |
| O2 | 11.6% | | | |
| CO | 1 ppm | | | |
| Eff | 82.5% | | | |
| CO2 | 5.2 % | | | |
| T-Stk | 294°F | | | |
| T-Air | 102.6°F | | | |
| EA | 111.2% | | | |
| CO (15) | 0 ppm | | | |
| NO | 38 ppm | | | |
| NO2 | 1 ppm | | | |
| NOX | 39 ppm | | | |
| SO2 | * * * | | | |
| NO (15) | 24 ppm | | | |
| NOX (15) | 25 ppm | | | |
| SO2 (15 | * * * | | | |
| K lbs/hour | 12 KPPH | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 07/26/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0910 | | | 0903 |
| Recorded Test | 0916 | | | 0909 |
| O2 | 14.8% | | | 16.0% |
| CO | 4ppm | | | 0ppm |
| Eff | 76.8% | | | 73.5% |
| CO2 | 3.4% | | | 2.8% |
| T-Stk | 312°F | | | 307°F |
| T-Air | 92.9°F | | | 82.7°F |
| EA | 216.9% | | | 250% |
| CO (15) | 4ppm | | | 0ppm |
| NO | 16ppm | | | 8ppm |
| NO2 | 2ppm | | | 2ppm |
| NOX | 13ppm | | | 11ppm |
| SO2 | *** | | | *** |
| NO (15) | 10ppm | | | 10ppm |
| NOX (15) | 12.0ppm | | | 13ppm |
| SO2 (15 | *** | | | *** |
| Mega Watts | 7.1 MW | | | 7.3MW |
| KSCF/hour | 20KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:16:52 AM
Date: 07/26/21

#1 GT
Fuel W/DB
NGAS 7.1 MW
20KSCFH

| | |
|---|---|
| $O_2$ | 14.8 % |
| CO | 4 ppm |
| Eff | 76.8 % |
| $CO_2$ | 3.4 % |
| T-Stk | 312 °F |
| T-Air | 92.9 °F |
| EA | 216.9 % |
| CO(15) | 4 ppm |
| NO | 10 ppm |
| $NO_2$ | 2 ppm |
| NOx | 13 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 12 ppm |
| $SO_2$(15) | *** ppm |

Comments:

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:09:07 AM
Date: 07/26/21

#2 GT
Fuel 7.3 MW
NGAS W/O DB

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 73.5 % |
| $CO_2$ | 2.8 % |
| T-Stk | 307 °F |
| T-Air | 82.7 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 8 ppm |
| $NO_2$ | 2 ppm |
| NOx | 11 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 13 ppm |
| $SO_2$(15) | *** ppm |

Comments:

**EMISSION TEST COLLEGE PARK ENERGY**

| Date: 08/02/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1241 | | | 1230 |
| Recorded Test | 1248 | | | 1239 |
| O2 | 14.5% | | | 16% |
| CO | 3ppm | | | 0ppm |
| Eff | 78.1% | | | 74.8% |
| CO2 | 3.6% | | | 2.8% |
| T-Stk | 303°F | | | 291°F |
| T-Air | 93.5°F | | | 85.6°F |
| EA | 202% | | | 250% |
| CO (15) | 3ppm | | | 0ppm |
| NO | 18ppm | | | 14ppm |
| NO2 | 3ppm | | | 3ppm |
| NOX | 20ppm | | | 17ppm |
| SO2 | *** | | | *** |
| NO (15) | 16ppm | | | 17ppm |
| NOX (15) | 19ppm | | | 21ppm |
| SO2 (15 | *** | | | *** |
| Mega Watts | 7.4 MW | | | 7.5 MW |
| KSCF/hour | 18KSCFH | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:39:25 PM
Date: 08/02/21

#2 GT
W/O DB
7.5 MW

Fuel NGAS

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 74.8 % |
| $CO_2$ | 2.8 % |
| T-Stk | 291 °F |
| T-Air | 85.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 17 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 21 ppm |
| $SO_2$(15) | **** ppm |

Comments:

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 12:48:16 PM
Date: 08/02/21

#1 GT
W/ DB
7.4 MW
18 KSCFH

Fuel NGAS

| | |
|---|---|
| $O_2$ | 14.5 % |
| CO | 3 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.6 % |
| T-Stk | 303 °F |
| T-Air | 93.5 °F |
| EA | 202.0 % |
| CO(15) | 3 ppm |
| NO | 18 ppm |
| $NO_2$ | 3 ppm |
| NOx | 20 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | **** ppm |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 08/09/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1925 | | | |
| Recorded Test | 1936 | | | |
| O2 | 14.0 y. | | | |
| CO | 3 PPM | | | |
| Eff | 80.1 y. | | | |
| CO2 | 3.9 y. | | | |
| T-Stk | 266°F | | | |
| T-Air | 77.1°F | | | |
| EA | 180.9% | | | |
| CO (15) | 3 PPM | | | |
| NO | 0 PPM | | | |
| NO2 | 3 PPM | | | |
| NOX | 3 PPM | | | |
| SO2 | * * * | | | |
| NO (15) | 0 PPM | | | |
| NOX (15) | 2 PPM | | | |
| SO2 (15 | * * * | | | |
| Mega Watts | 7.6 MW | | | |
| KSCF/hour | 38 KSCF/HR | | | |

**Signature:**

| Date: 08/09/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1750 | | | |
| Recorded Test | 1806 | | | |
| O2 | 5.1 y. | | | |
| CO | 0 PPM | | | |
| Eff | 84.5 y. | | | |
| CO2 | 8.9 y. | | | |
| T-Stk | 310°F | | | |
| T-Air | 83.4°F | | | |
| EA | 28.7 y. | | | |
| CO (15) | 0 PPM | | | |
| NO | 41 PPM | | | |
| NO2 | 1 PPM | | | |
| NOX | 42 PPM | | | |
| SO2 | * * * | | | |
| NO (15) | 15 PPM | | | |
| NOX (15) | 16 PPM | | | |
| SO2 (15 | * * * | | | |
| K lbs/hour | 38 KPPH | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

HARACH, INC.
PCA 3
SN: TP1006

Time: 06:06:03 PM
Date: 08/09/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.1 % |
| CO | 0 ppm |
| Eff | 84.5 % |
| $CO_2$ | 8.9 % |
| T-Stk | 310 °F |
| T-Air | 83.4 °F |
| EA | 28.7 % |
| CO(15) | 0 ppm |
| NO | 41 ppm |
| $NO_2$ | 1 ppm |
| NOx | 42 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 16 ppm |
| $SO_2$(15) | **** ppm |

Comments:

#1 BOILER

.....
.....
.....

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:36:31 PM
Date: 08/09/21

Fuel
NGAS

6T1
T6 MIN
98 Eff

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 3 ppm |
| Eff | 80.1 % |
| $CO_2$ | 3.9 % |
| T-Stk | 266 °F |
| T-Air | 77.1 °F |
| EA | 180.9 % |
| CO(15) | 3 ppm |
| NO | 0 ppm |
| $NO_2$ | 3 ppm |
| NOx | 3 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 0 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 2 ppm |
| $SO_2$(15) | **** ppm |

Comments:

**EMISSION TEST**

| Date: 8/16/21 | GT 1 DB | | | | GT2 |
|---|---|---|---|---|---|
| Start Test | 1429 | | | | |
| Recorded Test | 1432 | | | | |
| O2 | 14.1 % | | | | |
| CO | 3 PPM | | | | |
| Eff | 79.5 % | | | | |
| CO2 | 3.9 % | | | | |
| T-Stk | 278 °F | | | | |
| T-Air | 81.4 °F | | | | |
| EA | 183.7 % | | | | |
| CO (15) | 2 PPM | | | | |
| NO | 0 PPM | | | | |
| NO2 | 3 PPM | | | | |
| NOX | 3 PPM | | | | |
| SO2 | *** PPM | | | | |
| NO (15) | 0 PPM | | | | |
| NOX (15) | 3 PPM | | | | |
| SO2 (15 | *** PPM | | | | |
| Mega Watts | 7.2 | | | | |
| KSCF/hour | 26 | | | | |

**Signature:** Ken Wall

| Date: 8/16/21 | BLR 2 | | | | LR 4 |
|---|---|---|---|---|---|
| Start Test | 1452 | | | | |
| Recorded Test | 1507 | | | | |
| O2 | 6.6 % | | | | |
| CO | 0 PPM | | | | |
| Eff | 85.2 % | | | | |
| CO2 | 8.1 % | | | | |
| T-Stk | 290 °F | | | | |
| T-Air | 103.0 °F | | | | |
| EA | 40.7 % | | | | |
| CO (15) | 0 PPM | | | | |
| NO | 22 PPM | | | | |
| NO2 | 0 PPM | | | | |
| NOX | 22 PPM | | | | |
| SO2 | *** PPM | | | | |
| NO (15) | 9 PPM | | | | |
| NOX (15) | 9 PPM | | | | |
| SO2 (15 | *** PPM | | | | |
| K lbs/hour | 19 | | | | |

**Signature:** Ken Wall

GT 1 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:32:35 PM
Date: 08/16/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.1 % |
| CO | 3 ppm |
| Eff | 79.5 % |
| $CO_2$ | 3.9 % |
| T-Stk | 278 °F |
| T-Air | 81.4 °F |
| EA | 183.7 % |
| CO(15) | 2 ppm |
| NO | 0 ppm |
| $NO_2$ | 3 ppm |
| NOx | 3 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 0 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 3 ppm |
| $SO_2$(15) | **** ppm |

Comments:

MW: 22
KSCF: 26.

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:07:58 PM
Date: 08/16/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.6 % |
| CO | 0 ppm |
| Eff | 85.2 % |
| $CO_2$ | 8.1 % |
| T-Stk | 290 °F |
| T-Air | 103.0 °F |
| EA | 40.7 % |
| CO(15) | 0 ppm |
| NO | 22 ppm |
| $NO_2$ | 0 ppm |
| NOx | 22 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 9 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 9 ppm |
| $SO_2$(15) | **** ppm |

Comments:

19

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1120 | |
| Recorded Test | 1131 | |
| O2 | 14.2% | |
| CO | 3 PPM | |
| Eff | 80.2% | |
| CO2 | 3.8% | |
| T-Stk | 275°F | |
| T-Air | 92.1°F | |
| EA | 187.9% | |
| CO (15) | 2 PPM | |
| NO | 14 PPM | |
| NO2 | 3 PPM | |
| NOX | 16 PPM | |
| SO2 | *** | |
| NO (15) | 12 PPM | |
| NOX (15) | 14 PPM | |
| SO2 (15 | *** | |
| Mega Watts | 6.77 | |
| KSCF/hour | 33 KSCF | |

**Signature:** Nathan Sousa

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:31:03 AM
Date: 08/23/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.2 % |
| CO | 3 ppm |
| Eff | 80.2 % |
| $CO_2$ | 3.8 % |
| T-Stk | 275 °F |
| T-Air | 92.1 °F |
| EA | 187.9 % |
| CO(15) | 2 ppm |
| NO | 14 ppm |
| $NO_2$ | 3 ppm |
| NOx | 16 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 12 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 14 ppm |
| $SO_2$ (15) | *** ppm |

Comments: #1 GT/HRSG

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 11:59:10 AM
Date: 08/23/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.8 % |
| CO | 6 ppm |
| Eff | 85.5 % |
| $CO_2$ | 8.5 % |
| T-Stk | 292 °F |
| T-Air | 108.9 °F |
| EA | 34.4 % |
| CO(15) | 2 ppm |
| NO | 24 ppm |
| $NO_2$ | 2 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 9 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 10 ppm |
| $SO_2$ (15) | *** ppm |

Comments: #2 BOILER

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1140 | |
| Recorded Test | 1159 | |
| O2 | 5.8% | |
| CO | 6 PPM | |
| Eff | 85.5% | |
| CO2 | 8.5% | |
| T-Stk | 292°F | |
| T-Air | 108.9°F | |
| EA | 34.4% | |
| CO (15) | 2 PPM | |
| NO | 24 PPM | |
| NO2 | 2 PPM | |
| NOX | 25 PPM | |
| SO2 | *** | |
| NO (15) | 9 PPM | |
| NOX (15) | 10 PPM | |
| SO2 (15 | *** | |
| K lbs/hour | 17 KPPH | |

**Signature:** Josh Sousa JOSH SOUSA

'D THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

'HEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 8/30/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1400 | | | |
| Recorded Test | 1409 | | | |
| O2 | 15.7% | | | |
| CO | 2 ppm | | | |
| Eff | 72.6% | | | |
| CO2 | 3.0% | | | |
| T-Stk | 344°F | | | |
| T-Air | 95.0°F | | | |
| EA | 250.0% | | | |
| CO (15) | 2 ppm | | | |
| NO | 14 ppm | | | |
| NO2 | 2 ppm | | | |
| NOX | 15 ppm | | | |
| SO2 | *** ppm | | | |
| NO (15) | 15 ppm | | | |
| NOX (15) | 17 ppm | | | |
| SO2 (15 | *** ppm | | | |
| Mega Watts | 6.65 | | | |
| KSCF/hour | 27 | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1428 | | | |
| Recorded Test | 1438 | | | |
| O2 | 5.7% | | | |
| CO | 2 ppm | | | |
| Eff | 85.2% | | | |
| CO2 | 8.6% | | | |
| T-Stk | 294°F | | | |
| T-Air | 97.6°F | | | |
| EA | 33.1% | | | |
| CO (15) | 1 ppm | | | |
| NO | 40 ppm | | | |
| NO2 | 3 ppm | | | |
| NOX | 43 ppm | | | |
| SO2 | *** ppm | | | |
| NO (15) | 15 ppm | | | |
| NOX (15) | 17 ppm | | | |
| SO2 (15 | *** ppm | | | |
| K lbs/hour | 22 kpph | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:09:25 PM
Date: 08/30/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.7 % |
| CO | 2 ppm |
| Eff | 72.6 % |
| $CO_2$ | 3.0 % |
| T-Stk | 344 °F |
| T-Air | 95.0 °F |
| EA | 250.0 % |
| CO(15) | 2 ppm |
| NO | 14 ppm |
| $NO_2$ | 2 ppm |
| NOx | 15 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| $SO_2$(15) | **** ppm |

Comments:

MW 6.65 MW

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:28:58 PM
Date: 08/30/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 2 ppm |
| Eff | 85.2 % |
| $CO_2$ | 8.6 % |
| T-Stk | 294 °F |
| T-Air | 97.6 °F |
| EA | 33.1 % |
| CO(15) | 1 ppm |
| NO | 40 ppm |
| $NO_2$ | 3 ppm |
| NOx | 43 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 17 ppm |
| $SO_2$(15) | **** ppm |

Comments:

This is actually GT1 not GT 2

**GT #1 w/ DB**

~~GT2DB~~

**EMISSION TE**

| Date: 09/06/21 | GT1DB |
|---|---|
| Start Test | 0903 |
| Recorded Test | 0906 |
| O2 | 13.6 % |
| CO | 3 PPM |
| Eff | 80.5 % |
| CO2 | 4.1 % |
| T-Stk | 278 °F |
| T-Air | 85.9 °F |
| EA | 165.0 % |
| CO (15) | 2 PPM |
| NO | 21 PPM |
| NO2 | 3 PPM |
| NOX | 24 PPM |
| SO2 | *** PPM |
| NO (15) | 17 PPM |
| NOX (15) | 19 PPM |
| SO2 (15 | *** PPM |
| Mega Watts | 7.3 |
| KSCF/hour | 37 |

**Signature:** Ken Will

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:37:47 AM
Date: 09/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.6 % |
| CO | 3 ppm |
| Eff | 80.5 % |
| $CO_2$ | 4.1 % |
| T-Stk | 278 °F |
| T-Air | 85.9 °F |
| EA | 165.0 % |
| CO(15) | 2 ppm |
| NO | 21 ppm |
| $NO_2$ | 3 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments: 7.3
37

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:56:09 AM
Date: 09/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.9 % |
| CO | 4 ppm |
| Eff | 85.1 % |
| $CO_2$ | 8.5 % |
| T-Stk | 293 °F |
| T-Air | 97.1 °F |
| EA | 34.8 % |
| CO(15) | 1 ppm |
| NO | 38 ppm |
| $NO_2$ | 3 ppm |
| NOx | 41 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 16 ppm |
| $SO_2$(15) | *** ppm |

Comments:

20

| Date: 09/06/21 | BLR 2 | | | |
|---|---|---|---|---|
| Start Test | 0941 | | | |
| Recorded Test | 0956 | | | |
| O2 | 5.9 % | | | |
| CO | 4 PPM | | | |
| Eff | 85.1 % | | | |
| CO2 | 8.5 % | | | |
| T-Stk | 293 °F | | | |
| T-Air | 97.1 °F | | | |
| EA | 34.8 % | | | |
| CO (15) | 1 PPM | | | |
| NO | 38 PPM | | | |
| NO2 | 3 PPM | | | |
| NOX | 41 PPM | | | |
| SO2 | *** PPM | | | |
| NO (15) | 15 PPM | | | |
| NOX (15) | 16 PPM | | | |
| SO2 (15 | *** PPM | | | |
| K lbs/hour | 20 | | | |

**Signature:** Ken Will

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE

| ate: 9/13/21 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1429 | |
| Recorded Test | 1435 | |
| 02 | 14.0% | |
| CO | 2 ppm | |
| Eff | 81.1% | |
| CO2 | 3.9% | |
| -Stk | 262°F | |
| -Air | 89.6°F | |
| A | 180.3% | |
| O (15) | 2 ppm | |
| O | 17 ppm | |
| O2 | 2 ppm | |
| OX | 19 ppm | |
| 02 | *** | |
| O (15) | 15 ppm | |
| OX (15) | 16 ppm | |
| 02 (15 | *** | |
| ga Watts | 6.9 | |
| CF/hour | 28 Kf | |

nature:

| e: | BLR 2 | BLR 4 | |
|---|---|---|---|
| t Test | 1444 | | |
| orded Test | 1450 | | |
| | 11.1% | | |
| | 8 ppm | | |
| | 84.4% | | |
| | 5.6% | | |
| k | 256°F | | |
| r | 100.2°F | | |
| | 99.9% | | |
| 15) | 5 ppm | | |
| | 23 ppm | | |
| | 5 ppm | | |
| | 27 ppm | | |
| | *** | | |
| 15) | 14 ppm | | |
| (15) | 16 ppm | | |
| 15 | *** | | |
| hour | 20 | | |

ture:

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:29:41 PM
Date: 09/13/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.0 % |
| CO | 2 ppm |
| Eff | 81.1 % |
| $CO_2$ | 3.9 % |
| T-Stk | 262 °F |
| T-Air | 89.6 °F |
| EA | 180.3 % |
| CO(15) | 2 ppm |
| NO | 17 ppm |
| $NO_2$ | 2 ppm |
| NOx | 19 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 16 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

PROBE IS INSERTED (Start). WAIT 15 MINUTES ...

INT TEST RESULTS

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 02:44:30 PM
Date: 09/13/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.1 % |
| CO | 8 ppm |
| Eff | 84.4 % |
| $CO_2$ | 5.6 % |
| T-Stk | 256 °F |
| T-Air | 100.2 °F |
| EA | 99.9 % |
| CO(15) | 5 ppm |
| NO | 23 ppm |
| $NO_2$ | 5 ppm |
| NOx | 27 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 16 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

ND THEN PRINT TEST RESULTS

THIS SHEET

## EMISSION TEST CO

| Date: 9/20/21 | GT 1 DB | GT 2 |
|---|---|---|
| Start Test | 1500 | |
| Recorded Test | 1503 | |
| O2 | 13.5% | |
| CO | 3 PPM | |
| Eff | 80.8 % | |
| CO2 | 4.2 % | |
| T-Stk | 273 °F | |
| T-Air | 85.6 °F | |
| EA | 163.6 % | |
| CO (15) | 2 PPM | |
| NO | 22 PPM | |
| NO2 | 3 PPM | |
| NOX | 24 PPM | |
| SO2 | *** PPM | |
| NO (15) | 17 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | *** PPM | |
| Mega Watts | 7.4 | |
| KSCF/hour | 37 | |

**Signature:** Ken Wells

| Date: 9/20/21 | BLR 2 | BLR 4 | | | |
|---|---|---|---|---|---|
| Start Test | 1512 | | | | |
| Recorded Test | 1527 | | | | |
| O2 | 7.5% | | | | |
| CO | 26 PPM | | | | |
| Eff | 84.9 % | | | | |
| CO2 | 7.6 % | | | | |
| T-Stk | 285 °F | | | | |
| T-Air | 99.0 °F | | | | |
| EA | 49.5 % | | | | |
| CO (15) | 12 PPM | | | | |
| NO | 31 PPM | | | | |
| NO2 | 10 PPM | | | | |
| NOX | 41 PPM | | | | |
| SO2 | *** PPM | | | | |
| NO (15) | 14 PPM | | | | |
| NOX (15) | 18 PPM | | | | |
| SO2 (15 | *** PPM | | | | |
| K lbs/hour | 18 | | | | |

**Signature:** Ken Wells

GT 1 DB

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:03:11 PM
Date: 09/20/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.5 % |
| CO | 3 ppm |
| Eff | 80.8 % |
| $CO_2$ | 4.2 % |
| T-Stk | 273 °F |
| T-Air | 85.6 °F |
| EA | 163.6 % |
| CO(15) | 2 ppm |
| NO | 22 ppm |
| $NO_2$ | 3 ppm |
| NOx | 24 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:
MW: 7.4
KSCF/hr: 37

BLR 2

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:27:30 PM
Date: 09/20/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.5 % |
| CO | 26 ppm |
| Eff | 84.9 % |
| $CO_2$ | 7.6 % |
| T-Stk | 285 °F |
| T-Air | 99.0 °F |
| EA | 49.5 % |
| CO(15) | 12 ppm |
| NO | 31 ppm |
| $NO_2$ | 10 ppm |
| NOx | 41 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 18 ppm |
| $SO_2$(15) | *** ppm |

Comments:
K lbs/hr: 18

N PRINT TEST RESULTS

N PRINT TEST RESULTS

ET

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** MOBILE

MOBILE

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:55:52 PM
Date: 09/21/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.8 % |
| CO | 1 ppm |
| Eff | 81.8 % |
| $CO_2$ | 7.4 % |
| T-Stk | 375 °F |
| T-Air | 98.0 °F |
| EA | 53.0 % |
| CO(15) | 0 ppm |
| NO | 25 ppm |
| $NO_2$ | 0 ppm |
| NOx | 25 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 11 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 11 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr: 12

BLR4

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 03:19:17 PM
Date: 09/21/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.4 % |
| CO | 0 ppm |
| Eff | 82.0 % |
| $CO_2$ | 8.2 % |
| T-Stk | 396 °F |
| T-Air | 104.9 °F |
| EA | 39.2 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 0 ppm |
| NOx | 57 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| $SO_2$ (15) | *** ppm |

Comments:

Klbs/hr: 10

| Date: 9/21/21 | ~~TEMP~~ ~~BLR 2~~ | BLR 4 |
|---|---|---|
| Start Test | 1540 | 1504 |
| Recorded Test | 1555 | 1519 |
| O2 | 7.8 % | 6.4 % |
| CO | 1 PPM | 0 PPM |
| Eff | 81.8 % | 82.0 % |
| CO2 | 7.4 % | 8.2 % |
| T-Stk | 375 °F | 396 °F |
| T-Air | 98.0 °F | 104.9 °F |
| EA | 53.0 % | 39.2 % |
| CO (15) | 0 PPM | 0 PPM |
| NO | 25 PPM | 57 PPM |
| NO2 | 0 PPM | 0 PPM |
| NOX | 25 PPM | 57 PPM |
| SO2 | *** PPM | *** PPM |
| NO (15) | 11 PPM | 23 PPM |
| NOX (15) | 11 PPM | 23 PPM |
| SO2 (15 | *** PPM | *** PPM |
| K lbs/hour | 12 | 10 |

**Signature:** Kenneth Will

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PA

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | 0835 | | |
| Recorded Test | 0845 | | |
| O2 | 13.7% | | |
| CO | 3PPM | | |
| Eff | 80.1% | | |
| CO2 | 4.1% | | |
| T-Stk | 275°F | | |
| T-Air | 79.1°F | | |
| EA | 169.6% | | |
| CO (15) | 2PPM | | |
| NO | 20 PPM | | |
| NO2 | 3PPM | | |
| NOX | 23PPM | | |
| SO2 | *** | | |
| NO (15) | 17 PPM | | |
| NOX (15) | 19PPM | | |
| SO2 (15 | *** | | |
| Mega Watts | 8MW | | |
| KSCF/hour | 36 KSCF | | |

**Signature:** John Souza

| Date: | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 0900 | | | |
| Recorded Test | 0916 | | | |
| O2 | 5.7% | | | |
| CO | 4PPM | | | |
| Eff | 84.9% | | | |
| CO2 | 8.6% | | | |
| T-Stk | 285°F | | | |
| T-Air | 81.2°F | | | |
| EA | 33.5% | | | |
| CO (15) | 1 PPM | | | |
| NO | 45 PPM | | | |
| NO2 | 4 PPM | | | |
| NOX | 49 PPM | | | |
| SO2 | *** | | | |
| NO (15) | 17 PPM | | | |
| NOX (15) | 19 PPM | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 20 KPPH | | | |

**Signature:** John Souza

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 08:45:12 AM
Date: 09/27/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 3 ppm |
| Eff | 80.1 % |
| $CO_2$ | 4.1 % |
| T-Stk | 275 °F |
| T-Air | 79.1 °F |
| EA | 169.6 % |
| CO(15) | 2 ppm |
| NO | 20 ppm |
| $NO_2$ | 3 ppm |
| NOx | 23 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:
#1 GT/HRSG

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 09:16:28 AM
Date: 09/27/21

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 4 ppm |
| Eff | 84.9 % |
| $CO_2$ | 8.6 % |
| T-Stk | 285 °F |
| T-Air | 81.2 °F |
| EA | 33.5 % |
| CO(15) | 1 ppm |
| NO | 45 ppm |
| $NO_2$ | 4 ppm |
| NOx | 49 ppm |
| $SO_2$ | *** ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| $SO_2$(15) | *** ppm |

Comments:
#2 BOILER

THEN PRINT TEST RESULTS

SHEET

THEN PRINT TEST RESULTS

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

January 20, 2022

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite
#715 1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Dakota Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of October 01, 2021 through December 31, 2021.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility October 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 139.50 | 0.00 | 16128.55 | 0.00 | | 855,580,000 | 0 | 894,894 | 0 | 0.0081 | 0.0000 | 0.0081 | 0.9758 | 0.0000 | 0.9758 | 0.0242 | 0.0000 | 0.0242 | 0.0484 | 0.0000 | 0.0484 | 0.0395 | 0.0000 | 0.0395 | 0.0395 | 0.0000 | 0.0395 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 698,160,000 | 0 | 730,240 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 48.00 | | 1589.84 | | | 123,900,000 | | 129,593 | | 0.0043 | | 0.0043 | 0.0103 | | 0.0103 | 0.0079 | | 0.0079 | 0.0005 | | 0.0005 | 0.0016 | | 0.0016 | 0.0016 | | 0.0016 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 151,260,000 | | 158,210 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 740.60 | 0.00 | 71028.37 | 1.65 | | | | | | 0.0084 | 0.0000 | 0.0084 | 3.6099 | 0.0001 | 3.6100 | 0.0196 | 0.0000 | 0.0196 | 0.0209 | 0.0000 | 0.0209 | 0.3189 | 0.0001 | 0.3190 | 0.3189 | 0.0001 | 0.3190 |
| Boiler 4 | 681.70 | 0.00 | 26913.34 | 0.00 | | | | | | 0.0057 | 0.0000 | 0.0057 | 1.3789 | 0.0000 | 1.3789 | 0.0291 | 0.0000 | 0.0291 | 0.0079 | 0.0000 | 0.0079 | 0.0811 | 0.0000 | 0.0811 | 0.0811 | 0.0000 | 0.0811 |
| Emerg. Gen. | | 18.00 | | 139.73 | 29.2 | | | | | | 0.0063 | 0.0063 | | 0.2236 | 0.2236 | | 0.0594 | 0.0594 | | 0.0001 | 0.0001 | | 0.0040 | 0.0040 | | 0.0049 | 0.0049 |
| Mobile Boiler | 31.50 | 4.00 | 0.20 | 1791.00 | | | | | | 0.0004 | 0.0005 | 0.0009 | 0.0038 | 0.0246 | 0.0284 | 0.0040 | 0.0046 | 0.0086 | 0.0001 | 0.0002 | 0.0003 | 0.0011 | 0.0120 | 0.0131 | 0.0011 | 0.0120 | 0.0131 |
| Emissions Total | | | | | | | | | | 0.0269 | 0.0068 | 0.0337 | 5.9787 | 0.2483 | 6.2270 | 0.0848 | 0.0640 | 0.1489 | 0.0777 | 0.0003 | 0.0781 | 0.4422 | 0.0161 | 0.4583 | 0.4422 | 0.0169 | 0.4591 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.03 | 122.02 | 8.32 | 5.18 | 5.56 | 5.56 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility November 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 493.20 | 0.00 | 57569.09 | 0.00 | | 828,330,000 | 0 | 866,392 | 0 | 0.0288 | 0.0000 | 0.0288 | 3.4829 | 0.0000 | 3.4829 | 0.0864 | 0.0000 | 0.0864 | 0.1727 | 0.0000 | 0.1727 | 0.1410 | 0.0000 | 0.1410 | 0.1410 | 0.0000 | 0.1410 |
| Turbine 2 | 237.80 | 0.00 | 9047.47 | 0.00 | | 620,880,000 | 0 | 649,409 | 0 | 0.0090 | 0.0000 | 0.0090 | 0.5836 | 0.0000 | 0.5836 | 0.0633 | 0.0000 | 0.0633 | 0.0271 | 0.0000 | 0.0271 | 0.0163 | 0.0000 | 0.0163 | 0.0163 | 0.0000 | 0.0163 |
| Duct Burner 1 | 211.20 | | 7196.14 | | | 130,780,000 | | 136,789 | | 0.0194 | | 0.0194 | 0.0468 | | 0.0468 | 0.0360 | | 0.0360 | 0.0021 | | 0.0021 | 0.0071 | | 0.0071 | 0.0071 | | 0.0071 |
| Duct Burner 2 | 24.00 | | 313.79 | | | 124,980,000 | | 130,723 | | 0.0008 | | 0.0008 | 0.0020 | | 0.0020 | 0.0016 | | 0.0016 | 0.0001 | | 0.0001 | 0.0003 | | 0.0003 | 0.0003 | | 0.0003 |
| Boiler 2 | 561.70 | 6.80 | 60489.38 | 592.49 | | | | | | 0.0072 | 0.0005 | 0.0076 | 3.0743 | 0.0361 | 3.1104 | 0.0167 | 0.0065 | 0.0232 | 0.0178 | 0.0131 | 0.0309 | 0.2716 | 0.0231 | 0.2947 | 0.2716 | 0.0231 | 0.2947 |
| Boiler 4 | 614.60 | 12.60 | 30498.86 | 480.32 | | | | | | 0.0065 | 0.0003 | 0.0068 | 1.5626 | 0.0314 | 1.5939 | 0.0330 | 0.0073 | 0.0403 | 0.0090 | 0.0103 | 0.0193 | 0.0919 | 0.0166 | 0.1085 | 0.0919 | 0.0166 | 0.1085 |
| Emerg. Gen. | | 0.00 | | 0.00 | 29.2 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 137.80 | 5.80 | 2.16 | 3725.00 | | | | | | 0.0045 | 0.0010 | 0.0055 | 0.0406 | 0.0512 | 0.0918 | 0.0423 | 0.0096 | 0.0519 | 0.0007 | 0.0004 | 0.0011 | 0.0119 | 0.0250 | 0.0369 | 0.0119 | 0.0250 | 0.0369 |
| Emissions Total | | | | | | | | | | 0.0763 | 0.0018 | 0.0781 | 8.7927 | 0.1187 | 8.9115 | 0.2792 | 0.0234 | 0.3026 | 0.2295 | 0.0238 | 0.2533 | 0.5401 | 0.0647 | 0.6048 | 0.5401 | 0.0647 | 0.6048 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.90 | 119.38 | 7.72 | 4.89 | 5.73 | 5.73 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility December 2021**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | scf/12-months NG | gal/12-months FO | mmbtu/12-months NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 361.80 | 0.00 | 25186.48 | 0.00 | | 779,220,000 | 0 | 815,025 | 0 | 0.0126 | 0.0000 | 0.0126 | 1.5238 | 0.0000 | 1.5238 | 0.0378 | 0.0000 | 0.0378 | 0.0756 | 0.0000 | 0.0756 | 0.0617 | 0.0000 | 0.0617 | 0.0617 | 0.0000 | 0.0617 |
| Turbine 2 | 707.90 | 0.00 | 88246.80 | 0.00 | | 617,910,000 | 0 | 646,303 | 0 | 0.0882 | 0.0000 | 0.0882 | 5.6919 | 0.0000 | 5.6919 | 0.6177 | 0.0000 | 0.6177 | 0.2647 | 0.0000 | 0.2647 | 0.1588 | 0.0000 | 0.1588 | 0.1588 | 0.0000 | 0.1588 |
| Duct Burner 1 | 355.90 | | 7813.25 | | | 131,580,000 | | 137,626 | | 0.0211 | | 0.0211 | 0.0508 | | 0.0508 | 0.0391 | | 0.0391 | 0.0023 | | 0.0023 | 0.0077 | | 0.0077 | 0.0077 | | 0.0077 |
| Duct Burner 2 | 462.40 | | 19067.67 | | | 112,920,000 | | 118,109 | | 0.0514 | | 0.0514 | 0.1239 | | 0.1239 | 0.0953 | | 0.0953 | 0.0056 | | 0.0056 | 0.0187 | | 0.0187 | 0.0187 | | 0.0187 |
| Boiler 2 | 135.80 | 4.30 | 4858.44 | 111.07 | | | | | | 0.0006 | 0.0001 | 0.0007 | 0.2469 | 0.0068 | 0.2537 | 0.0013 | 0.0012 | 0.0026 | 0.0014 | 0.0025 | 0.0039 | 0.0218 | 0.0043 | 0.0262 | 0.0218 | 0.0043 | 0.0262 |
| Boiler 4 | 592.80 | 0.20 | 19950.45 | 1.65 | | | | | | 0.0043 | 0.0000 | 0.0043 | 1.0221 | 0.0001 | 1.0222 | 0.0216 | 0.0000 | 0.0216 | 0.0059 | 0.0000 | 0.0059 | 0.0601 | 0.0001 | 0.0602 | 0.0601 | 0.0001 | 0.0602 |
| Emerg. Gen. | | 0.00 | | 0.00 | 29.2 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 96.90 | 0.00 | 1.04 | 0.00 | | | | | | 0.0022 | 0.0000 | 0.0022 | 0.0195 | 0.0000 | 0.0195 | 0.0203 | 0.0000 | 0.0203 | 0.0003 | 0.0000 | 0.0003 | 0.0057 | 0.0000 | 0.0057 | 0.0057 | 0.0000 | 0.0057 |
| Emissions Total | | | | | | | | | | 0.1803 | 0.0001 | 0.1804 | 8.6790 | 0.0069 | 8.6858 | 0.8331 | 0.0012 | 0.8344 | 0.3558 | 0.0025 | 0.3583 | 0.3346 | 0.0044 | 0.3390 | 0.3346 | 0.0044 | 0.3390 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.83 | 114.59 | 7.51 | 4.61 | 5.26 | 5.26 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLE

| e: | GT 1 DB | GT 2 DB |
|---|---|---|
| art Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

2

Time: 04:00:39 PM
Date: 10/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.3 % |
| CO | 1 ppm |
| Eff | 83.4 % |
| $CO_2$ | 9.9 % |
| T-Stk | 399 °F |
| T-Air | 113.1 °F |
| EA | 16.9 % |
| CO(15) | 0 ppm |
| NO | 43 ppm |
| $NO_2$ | 1 ppm |
| NOx | 44 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 15 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

71

BACHARACH

BACHARACH, INC.
PCA 3
SN: TP1006

4

Time: 03:43:46 PM
Date: 10/04/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.4 % |
| CO | 0 ppm |
| Eff | 81.4 % |
| $CO_2$ | 8.8 % |
| T-Stk | 447 °F |
| T-Air | 117.6 °F |
| EA | 30.7 % |
| CO(15) | 0 ppm |
| NO | 69 ppm |
| $NO_2$ | 0 ppm |
| NOx | 69 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 26 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 26 ppm |
| $SO_2$ (15) | **** ppm |

Comments:

35

| Date: 10/4/21 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1600 | 1543 | | |
| Recorded Test | 1615 | 1600 | | |
| O2 | 3.3% | 5.4% | | |
| CO | 1 ppm | 0 ppm | | |
| Eff | 83.4% | 81.4% | | |
| CO2 | 9.9% | 8.8% | | |
| T-Stk | 399°F | 447°F | | |
| T-Air | 113.1°F | 117.6°F | | |
| EA | 16.9% | 30.7% | | |
| CO (15) | 0 ppm | 0 ppm | | |
| NO | 43 ppm | 69 ppm | | |
| NO2 | 1 ppm | 0 ppm | | |
| NOX | 44 ppm | 69 ppm | | |
| SO2 | *** | *** | | |
| NO (15) | 14 ppm | 26 ppm | | |
| NOX (15) | 15 ppm | 26 ppm | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 71 | 35 | | |

**Signature:**

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

S SHEET

CP49362

**EMISSION TEST COLLEGE**

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:** _____

| Date: | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1148 | 1203 | | |
| Recorded Test | 1203 | 1218 | | |
| O2 | 3.8 | 5.5 | | |
| CO | 5 | 0 | | |
| Eff | 82.8 | 80.2 | | |
| CO2 | 9.7 | 8.7 | | |
| T-Stk | 388 | 463 | | |
| T-Air | 83.4 | 93.4 | | |
| EA | 19.6 | 31.5 | | |
| CO (15) | 6 | 0 | | |
| NO | 46.3 | 74 | | |
| NO2 | 3.9 | 0 | | |
| NOX | 50 | 74 | | |
| SO2 | ~~+6***~~ | ~~***~~ | | |
| NO (15) | 16 | 28 | | |
| NOX (15) | 17 | 28 | | |
| SO2 (15 | ~~***~~ | ~~***~~ | | |
| K lbs/hour | 70 | 40 | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:03:25 PM
Date: 10/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.8 % |
| CO | 5 ppm |
| Eff | 82.8 % |
| $CO_2$ | 9.7 % |
| T-Stk | 388 °F |
| T-Air | 83.4 °F |
| EA | 19.6 % |
| CO(0) | 6 ppm |
| NO | 46.3 ppm |
| $NO_2$ | 3.9 ppm |
| NOx | 50 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:18:47 PM
Date: 10/11/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 80.2 % |
| $CO_2$ | 8.7 % |
| T-Stk | 463 °F |
| T-Air | 93.4 °F |
| EA | 31.6 % |
| CO(0) | 0 ppm |
| NO | 74 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 74 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.77 LPM |

Comments:

TO THIS SHEET

S AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEG

| ıte: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

#4 Boiler

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:23:15 AM
Date: 10/18/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.1 % |
| CO | 0 ppm |
| Eff | 80.5 % |
| $CO_2$ | 8.4 % |
| T-Stk | 436 °F |
| T-Air | 88.9 °F |
| EA | 36.5 % |
| CO(0) | 0 ppm |
| NO | 68 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 68 ppm |
| NO(15) | 27 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 27 ppm |
| Flow | 0.77 LPM |

Comments:

4

Boiler 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:09:44 AM
Date: 10/18/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.4 % |
| CO | 5 ppm |
| Eff | 83.2 % |
| $CO_2$ | 9.9 % |
| T-Stk | 375 °F |
| T-Air | 79.4 °F |
| EA | 17.0 % |
| CO(0) | 6 ppm |
| NO | 52 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 56 ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments:

2

| Date: 10/18/21 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 0952 | 1009 | | |
| Recorded Test | 1009 | 1023 | | |
| O2 | 3.4 % | 6.1 % | | |
| CO | 5 PPM | 0 PPM | | |
| Eff | 83.2 % | 80.5 % | | |
| CO2 | 9.9 % | 8.4 % | | |
| T-Stk | 375 °F | 436 °F | | |
| T-Air | 79.4 °F | 88.9 °F | | |
| EA | 17 % | 36.5 % | | |
| CO (15) | 6 PPM | 0 PPM | | |
| NO | 52 PPM | 68 PPM | | |
| NO2 | 3.8 PPM | 0 PPM | | |
| NOX | 56 PPM | 68 PPM | | |
| SO2 | - - - | - - - | | |
| NO (15) | 17 PPM | 27 PPM | | |
| NOX (15) | 19 PPM | 27 PPM | | |
| SO2 (15 | - - - | - - - | | |
| K lbs/hour | 1490 ACFM | 597 ACFM | | |

**Signature:**

TO THIS SHEET

ES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BLR 2

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 11:45:57 AM
Date: 10/25/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.5 % |
| CO | 8 ppm |
| Eff | 82.5 % |
| $CO_2$ | 9.8 % |
| T-Stk | 398 °F |
| T-Air | 78.8 °F |
| EA | 18.0 % |
| CO(0) | 9 ppm |
| NO | 44.8 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 47.9 ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.75 LPM |

Comments:
K lbs/hr
65

BLR 4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 01:38:25 PM
Date: 10/25/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.7 % |
| CO | 0 ppm |
| Eff | 80.8 % |
| $CO_2$ | 8.0 % |
| T-Stk | 441 °F |
| T-Air | 113.7 °F |
| EA | 41.6 % |
| CO(0) | 0 ppm |
| NO | 61 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 61 ppm |
| NO(15) | 25 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 25 ppm |
| Flow | 0.76 LPM |

Comments:
K lbs/hr
35

| Date: 10/25/21 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1130 | 1323 | | |
| Recorded Test | 1145 | 1338 | | |
| O2 | 3.5 % | 6.7 % | | |
| CO | 8 PPM | 0 PPM | | |
| Eff | 82.5 % | 80.8 % | | |
| CO2 | 9.8 % | 8.0 % | | |
| T-Stk | 398 °F | 441 °F | | |
| T-Air | 78.8 °F | 113.7 °F | | |
| EA | 18.0 % | 41.6 % | | |
| CO (15) | 9 PPM | 0 PPM | | |
| NO | 44.8 PPM | 61 PPM | | |
| NO2 | 3.2 PPM | 0.0 PPM | | |
| NOX | 47.9 PPM | 61 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 15 PPM | 25 PPM | | |
| NOX (15) | 16 PPM | 25 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 65 | 35 | | |

**Signature:** Ken Wilson

IS SHEET

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ND THEN PRINT TEST RESULTS

CP50211

## EMISSION TEST COLLEGE I

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** _____

BLR 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:54:55 AM
Date: 11/01/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.4 % |
| CO | 49 ppm |
| Eff | 82.7 % |
| $CO_2$ | 9.9 % |
| T-Stk | 398 °F |
| T-Air | 86.9 °F |
| EA | 17.1 % |
| CO(0) | 58 ppm |
| NO | 53 ppm |
| $NO_2$ | 5.8 ppm |
| NOx | 58 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.77 LPM |

Comments:

BLR4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:32:04 AM
Date: 11/01/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.1 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.9 % |
| T-Stk | 474 °F |
| T-Air | 85.0 °F |
| EA | 28.7 % |
| CO(0) | 0 ppm |
| NO | 99 ppm |
| $NO_2$ | 1.8 ppm |
| NOx | 101 ppm |
| NO(15) | 37 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 38 ppm |
| Flow | 0.78 LPM |

Comments:

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 1039 | 1017 |
| Recorded Test | 1054 | 1032 |
| O2 | 3.4 % | 5.1 % |
| CO | 49 ppm | 0 ppm |
| Eff | 82.7 % | 79.8 % |
| CO2 | 9.9 % | 8.9 % |
| T-Stk | 398 °F | 474 °F |
| T-Air | 86.9 °F | 85.0 °F |
| EA | 17.1 % | 28.7 % |
| CO (15) | 58 ppm | 0 ppm |
| NO | 53 ppm | 99 ppm |
| NO2 | 5.8 ppm | 1.8 ppm |
| NOX | 58 ppm | 101 ppm |
| SO2 | *** ppm | *** ppm |
| NO (15) | 2 ppm | 1 ppm |
| NOX (15) | 20 ppm | 38 ppm |
| SO2 (15 | *** ppm | *** ppm |
| K lbs/hour | 1100 ACFM | 828 ACFM |

**Signature:** _____

ITES AND THEN PRINT TEST RESULTS

ITES AND THEN PRINT TEST RESULTS

I TO THIS SHEET

## EMISSION TEST COLLEGE F

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:**

BLR2

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 03:38:07 PM
Date: 11/08/21

Fuel
NGAS

| | |
|---|---|
| $O_{2}$ | 7.1 % |
| CO | 0 ppm |
| Eff | 79.9 % |
| $CO_2$ | 7.8 % |
| T-Stk | 444 °F |
| T-Air | 96.3 °F |
| EA | 45.7 % |
| CO(0) | 0 ppm |
| NO | 68 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 68 ppm |
| NO(15) | 29 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.76 LPM |

Comments:

11LBS/hr : 62

BLR4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 03:53:07 PM
Date: 11/08/21

Fuel
Oil 2

| | |
|---|---|
| $O_{2}$ | 5.1 % |
| CO | 0 ppm |
| Eff | 85.7 % |
| $CO_2$ | 11.8 % |
| T-Stk | 431 °F |
| T-Air | 98.5 °F |
| EA | 29.8 % |
| CO(0) | 0 ppm |
| NO | 100 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 100 ppm |
| NO(15) | 37 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 37 ppm |
| Flow | 0.77 LPM |

Comments:

12LBS/hr: 80

| Date: 11/8/21 | BLR 2 | (OIL) BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1523 | 1538 | | |
| Recorded Test | 1538 | 1553 | | |
| O2 | 7.1 % | 5.1 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 79.9 % | 85.7 % | | |
| CO2 | 7.8 % | 11.8 % | | |
| T-Stk | 444 °F | 431 °F | | |
| T-Air | 96.3 °F | 98.5 °F | | |
| EA | 45.7 % | 29.8 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 68 PPM | 100 PPM | | |
| NO2 | 0.0 PPM | 0.0 PPM | | |
| NOX | 68 PPM | 100 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 29 PPM | 37 PPM | | |
| NOX (15) | 29 PPM | 37 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| K lbs/hour | 62 | 80 | | |

**Signature:** Ken Will

JTES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

T TO THIS SHEET

CP50612

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1857 | | | |
| Recorded Test | 1903 | | | |
| O2 | 13.4% | | | |
| CO | 3 ppm | | | |
| Eff | 79.3% | | | |
| CO2 | 4.2% | | | |
| T-Stk | 284°F | | | |
| T-Air | 65.4°F | | | |
| EA | 159.9% | | | |
| CO (15) | 8 ppm | | | |
| NO | 29.4 ppm | | | |
| NO2 | 4.0 ppm | | | |
| NOX | 33.4 ppm | | | |
| SO2 | N/A | | | |
| NO (15) | 23 ppm | | | |
| NOX (15) | 26 ppm | | | |
| SO2 (15 | N/A | | | |
| Mega Watts | 9.0 | | | |
| KSCF/hour | 48 | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 19:03:12
Date: 11/15/21

Fuel
NGAS

| | |
|---|---|
| $O_{2:}$ | 13.4 % |
| CO | 3 ppm |
| Eff | 79.3 % |
| $CO_2$ | 4.2 % |
| T-Stk | 284 °F |
| T-Air | 65.4 °F |
| EA | 159.9 % |
| CO(0) | 8 ppm |
| NO | 29.4 ppm |
| $NO_2$ | 4.0 ppm |
| NOx | 33.4 ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.78 LPM |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1908 | | | |
| Recorded Test | 1923 | | | |
| O2 | 3.8% | | | |
| CO | 30 ppm | | | |
| Eff | 83.3% | | | |
| CO2 | 9.7% | | | |
| T-Stk | 361°F | | | |
| T-Air | 75.9°F | | | |
| EA | 19.6% | | | |
| CO (15) | 36 ppm | | | |
| NO | 48.8 ppm | | | |
| NO2 | 4.7 ppm | | | |
| NOX | 54 ppm | | | |
| SO2 | N/A | | | |
| NO (15) | 17 ppm | | | |
| NOX (15) | 18 ppm | | | |
| SO2 (15 | N/A | | | |
| K lbs/hour | 52 | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 19:23:24
Date: 11/15/21

Fuel
NGAS

| | |
|---|---|
| $O_{2:}$ | 3.8 % |
| CO | 30 ppm |
| Eff | 83.3 % |
| $CO_2$ | 9.7 % |
| T-Stk | 361 °F |
| T-Air | 75.9 °F |
| EA | 19.6 % |
| CO(0) | 36 ppm |
| NO | 48.8 ppm |
| $NO_2$ | 4.7 ppm |
| NOx | 54 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.77 LPM |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 1730 |
| Recorded Test | | | | 1735 |
| O2 | | | | 16.0% |
| CO | | | | 0 PPM |
| Eff | | | | 24.7% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 928°F |
| T-Air | | | | 74.7°F |
| EA | | | | 250.0% |
| CO (15) | | | | 1 ppm |
| NO | | | | 16.8 ppm |
| NO2 | | | | 3.6 |
| NOX | | | | 19.4 |
| SO2 | | | | ** |
| NO (15) | | | | 19 |
| NOX (15) | | | | 23 |
| SO2 (15 | | | | ** |
| Mega Watts | | | | 9.5 mW |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 17:35:10
Date: 11/22/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 16.0 % |
| CO | 0 ppm |
| Eff | 24.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 928 °F |
| T-Air | 74.7 °F |
| EA | 250.0 % |
| CO(0) | 1 ppm |
| NO | 15.8 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 19.4 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.76 LPM |

Comments:

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## EMISSION TEST COLLEGE PARK ENERGY

| Date: 11/29/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0639 | | | 0644 |
| Recorded Test | 0642 | | | 0647 |
| O2 | 14.1 % | | | 17.9 % |
| CO | 3 PPM | | | 1 PPM |
| Eff | 78.1 % | | | --- % |
| CO2 | 3.9 % | | | --- % |
| T-Stk | 240 °F | | | 508 °F |
| T-Air | 68.4 °F | | | 65.1 °F |
| EA | 183.5 % | | | --- % |
| CO (15) | 10 PPM | | | --- % |
| NO | 26.4 PPM | | | 13.9 PPM |
| NO2 | 4.2 PPM | | | 0 PPM |
| NOX | 30.6 PPM | | | 13.9 PPM |
| SO2 | *** PPM | | | *** PPM |
| NO (15) | 23 PPM | | | --- PPM |
| NOX (15) | 26 PPM | | | 27.3 PPM |
| SO2 (15 | *** PPM | | | *** PPM |
| Mega Watts | 9 | | | 9.7 |
| KSCF/hour | 17 | | | |

**Signature:** Ken Will

| Date: 11/29/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0714 | | |
| Recorded Test | | 0729 | | |
| O2 | | 5.1 % | | |
| CO | | 0 PPM | | |
| Eff | | 78.3 % | | |
| CO2 | | 8.9 % | | |
| T-Stk | | 533 °F | | |
| T-Air | | 89.1 °F | | |
| EA | | 29 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 100 PPM | | |
| NO2 | | 1.9 PPM | | |
| NOX | | 102 PPM | | |
| SO2 | | *** PPM | | |
| NO (15) | | 38 PPM | | |
| NOX (15) | | 38 PPM | | |
| SO2 (15 | | *** PPM | | |
| K lbs/hour | | 40 | | |

**Signature:** Ken Will

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES AND THEN PRINT TEST RESULTS**

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS**

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:42:26
Date: 11/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.1 % |
| CO | 3 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.9 % |
| T-Stk | 290 °F |
| T-Air | 68.4 °F |
| EA | 183.5 % |
| CO(0) | 10 ppm |
| NO | 26.4 ppm |
| $NO_2$ | 4.2 ppm |
| NOx | 30.6 ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.78 LPM |

Comments:

MW: 9.

KSCF: 17

GT2

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:47:33
Date: 11/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 17.9 % |
| CO | 1 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 508 °F |
| T-Air | 65.1 °F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 13.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 13.9 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.77 LPM |

Comments:

$(NOx)_{15}$ = 27.39

MW: 9.7

BLR4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:29:24
Date: 11/29/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.1 % |
| CO | 0 ppm |
| Eff | 78.3 % |
| $CO_2$ | 8.9 % |
| T-Stk | 533 °F |
| T-Air | 89.1 °F |
| EA | 29.0 % |
| CO(0) | 0 ppm |
| NO | 100 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 102 ppm |
| NO(15) | 38 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 38 ppm |
| Flow | 0.77 LPM |

Comments:

Klbs/hr : 40

CP 51130

**EMISSION T**

| Date: | GT 1 DB | GT2 |
|---|---|---|
| Start Test | 0629 | 0640 |
| Recorded Test | 0635 | 0645 |
| O2 | 14.3% | 15.9% |
| CO | 3ppm | 0 ppm |
| Eff | 77.5% | 72.7% |
| CO2 | 3.7% | 2.8% |
| T-Stk | 293°F | 300°F |
| T-Air | 66.8°F | 62.6°F |
| EA | 191.3% | 250.0% |
| CO (15) | 9 ppm | 1 ppm |
| NO | 22.7 | 13.6 ppm |
| NO2 | 4.0 | 3.7 ppm |
| NOX | 26.7 | 17.4 ppm |
| SO2 | *** | *** |
| NO (15) | | 16 ppm |
| NOX (15) | | 21 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 8.4 | 9.1 |
| KSCF/hour | 23 | |

BACHARACH, INC. GT1 DB
PCA 400
SN: 18041087

Time: 06:35:26
Date: 12/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 3 ppm |
| Eff | 77.5 % |
| $CO_2$ | 3.7 % |
| T-Stk | 293 °F |
| T-Air | 66.8 °F |
| EA | 191.3 % |
| CO(0) | 9 ppm |
| NO | 22.7 ppm |
| $NO_2$ | 4.0 ppm |
| NOx | 26.7 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.79 LPM |

Comments:

GY

GT2 DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:45:16
Date: 12/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 72.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 300 °F |
| T-Air | 62.6 °F |
| EA | 250.0 % |
| CO(0) | 1 ppm |
| NO | 13.6 ppm |
| $NO_2$ | 3.7 ppm |
| NOx | 17.4 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

**Signature:**

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 0652 | |
| Recorded Test | 0707 | |
| O2 | 6.8% | |
| CO | 0 ppm | |
| Eff | 81.0% | |
| CO2 | 7.9% | |
| T-Stk | 403°F | |
| T-Air | 86.0°F | |
| EA | 43.2% | |
| CO (15) | 0 ppm | |
| NO | 67 ppm | |
| NO2 | 0 ppm | |
| NOX | 67 ppm | |
| SO2 | *** | |
| NO (15) | 28 ppm | |
| NOX (15) | 28 ppm | |
| SO2 (15 | *** | |
| K lbs/hour | 23K | |

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:07:40
Date: 12/06/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.8 % |
| CO | 0 ppm |
| Eff | 81.0 % |
| $CO_2$ | 7.9 % |
| T-Stk | 403 °F |
| T-Air | 86.0 °F |
| EA | 43.2 % |
| CO(0) | 0 ppm |
| NO | 67 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 67 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.77 LPM |

Comments:

**Signature:**

BLR4

S AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

THIS SHEET

## EMISSION TEST COLLEGE PA

| Date: 12/13/21 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | 1424 | |
| Recorded Test | | 1429 | |
| O2 | | 14.0 % | |
| CO | | 3 PPM | |
| Eff | | 78.1 % | |
| CO2 | | 3.9 % | |
| T-Stk | | 292 °F | |
| T-Air | | 68.3°F | |
| EA | | 182.2 % | |
| CO (15) | | 8 PPM | |
| NO | | 21 PPM | |
| NO2 | | 4.1 PPM | |
| NOX | | 25.1 PPM | |
| SO2 | | *** | |
| NO (15) | | 18 PPM | |
| NOX (15) | | 22 PPM | |
| SO2 (15 | | *** | |
| Mega Watts | | 9.1 | |
| KSCF/hour | | 31 | |

**Signature:** Ken Will

BACHARACH
GT2 DB
BACHARACH, INC.
PCA 400
SN: 18041087

Time: 14:29:15
Date: 12/13/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.0 % |
| CO | 3 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.9 % |
| T-Stk | 292 °F |
| T-Air | 68.3 °F |
| EA | 182.2 % |
| CO(0) | 8 ppm |
| NO | 21.0 ppm |
| $NO_2$ | 4.1 ppm |
| NOx | 25.1 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:

MW : 9.1
KSCF : 31

BACHARACH
BLR2
BACHARACH, INC.
PCA 400
SN: 18041087

Time: 15:01:50
Date: 12/13/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.9 % |
| CO | 0 ppm |
| Eff | 84.4 % |
| $CO_2$ | 8.4 % |
| T-Stk | 307 °F |
| T-Air | 87.7 °F |
| EA | 35.3 % |
| CO(0) | 0 ppm |
| NO | 52 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 53 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments:

Klbs/hr : 20

| Date: 12/13/22 | BLR 2 | BLR 4 | B | |
|---|---|---|---|---|
| Start Test | 1446 | | | |
| Recorded Test | 1501 | | | |
| O2 | 5.9 % | | | |
| CO | 0 PPM | | | |
| Eff | 84.4 % | | | |
| CO2 | 8.4 % | | | |
| T-Stk | 307 °F | | | |
| T-Air | 87.7 °F | | | |
| EA | 35.3 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 52 PPM | | | |
| NO2 | 1.4 PPM | | | |
| NOX | 53 PPM | | | |
| SO2 | *** | | | |
| NO (15) | 20 PPM | | | |
| NOX (15) | 21 PPM | | | |
| SO2 (15 | *** PPM | | | |
| K lbs/hour | 20 | | | |

**Signature:** Ken Will

UTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

CP51294

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/20/21 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1837 | | |
| Recorded Test | | 1842 | | |
| O2 | | 13.6 % | | |
| CO | | 4 ppm | | |
| Eff | | 80.3 % | | |
| CO2 | | 4.1 % | | |
| T-Stk | | 259 °F | | |
| T-Air | | 63.8 °F | | |
| EA | | 164.4 % | | |
| CO (15) | | 12 ppm | | |
| NO | | 26.1 ppm | | |
| NO2 | | 4.1 ppm | | |
| NOX | | 30.2 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 21 ppm | | |
| NOX (15) | | 24 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 10 MW | | |
| KSCF/hour | | 49 | | |

**Signature:** Evelyn Carter

| Date: 12/20/21 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | ~~1246~~ 1231 | | |
| Recorded Test | | 1246 | | |
| O2 | | 5.4 % | | |
| CO | | 0 ppm | | |
| Eff | | 77.6 % | | |
| CO2 | | 8.8 % | | |
| T-Stk | | 540 ° F | | |
| T-Air | | 79.1 °F | | |
| EA | | 30.8 % | | |
| CO (15) | | 0 ppm | | |
| NO | | 105 ppm | | |
| NO2 | | 1.6 ppm | | |
| NOX | | 106 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 40 ppm | | |
| NOX (15) | | 40 ppm | | |
| SO2 (15 | | *** | | |
| K lbs/hour | | | | |

**Signature:** Evelyn Carter

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP 51294

BOILER 4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:46:00
Date: 12/20/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 5.4 % |
| CO | 0 ppm |
| Eff | 77.6 % |
| $CO_2$ | 8.8 % |
| T-Stk | 540 °F |
| T-Air | 79.1 °F |
| EA | 30.8 % |
| CO(0) | 0 ppm |
| NO | 105 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 106 ppm |
| NO(15) | 40 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 40 ppm |
| Flow | 0.77 LPM |

Comments:

1059

GT 2 DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 18:42:03
Date: 12/20/21

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.6 % |
| CO | 4 ppm |
| Eff | 80.3 % |
| $CO_2$ | 4.1 % |
| T-Stk | 259 °F |
| T-Air | 63.8 °F |
| EA | 164.4 % |
| CO(0) | 12 ppm |
| NO | 26.1 ppm |
| $NO_2$ | 4.1 ppm |
| NOx | 30.2 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.77 LPM |

Comments:

10 MW
49 DUCT BURNER

## EMISSION TEST COLLEGE P

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0655 | 0705 |
| Recorded Test | 0701 | 0711 |
| O2 | 14.2% | 15.2% |
| CO | 4 ppm | 9ppm |
| Eff | 77.8% | 74.4% |
| CO2 | 3.8% | 3.2% |
| T-Stk | 290° | 301° |
| T-Air | 66.8° | 58.1° |
| EA | 188.5% | 236.9% |
| CO (15) | 12 ppm | 33 ppm |
| NO | 23.6 ppm | 14.7 ppm |
| NO2 | 3.7 ppm | 6.4 ppm |
| NOX | 27.4 ppm | 21.1 ppm |
| SO2 | *** | *** |
| NO (15) | 21 ppm | 15 ppm |
| NOX (15) | 24 ppm | 22 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 3.6 | 92 |
| KSCF/hour | 35 | 19 |

**Signature:**

GT1 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:01:01
Date: 12/27/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.2 % |
| CO | 4 ppm |
| Eff | 77.8 % |
| $CO_2$ | 3.8 % |
| T-Stk | 290 °F |
| T-Air | 66.8 °F |
| EA | 188.5 % |
| CO(0) | 12 ppm |
| NO | 23.6 ppm |
| $NO_2$ | 3.7 ppm |
| NOx | 27.4 ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.78 LPM |

GT2 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:11:59
Date: 12/27/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.2 % |
| CO | 9 ppm |
| Eff | 74.4 % |
| $CO_2$ | 3.2 % |
| T-Stk | 301 °F |
| T-Air | 58.1 °F |
| EA | 236.9 % |
| CO(0) | 33 ppm |
| NO | 14.7 ppm |
| $NO_2$ | 6.4 ppm |
| NOx | 21.1 ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 7 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

Comments:

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 0714 |
| Recorded Test | | 0729 |
| O2 | | 7.0% |
| CO | | 0ppm |
| Eff | | 80.5% |
| CO2 | | 7.8% |
| T-Stk | | 408° |
| T-Air | | 78.5° |
| EA | | 45.1% |
| CO (15) | | 0 ppm |
| NO | | 68 ppm |
| NO2 | | 0 ppm |
| NOX | | 68 ppm |
| SO2 | | *** |
| NO (15) | | 29 ppm |
| NOX (15) | | 29 ppm |
| SO2 (15 | | *** |
| K lbs/hour | HR | 21K |

**Signature:**

BLR 4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:29:55
Date: 12/27/21

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.0 % |
| CO | 0 ppm |
| Eff | 80.5 % |
| $CO_2$ | 7.8 % |
| T-Stk | 408 °F |
| T-Air | 78.5 °F |
| EA | 45.1 % |
| CO(0) | 0 ppm |
| NO | 68 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 68 ppm |
| NO(15) | 29 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.77 LPM |

Comments:

NUTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

April 25, 2022

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of January 01, 2022 through March 31, 2022.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Phil Riggs, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility January 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 735.50 | 0.00 | 90830.30 | 0.00 | | 776,830,000 | 0 | 812,525 | 0 | 0.0456 | 0.0000 | 0.0456 | 5.5176 | 0.0000 | 5.5176 | 0.1368 | 0.0000 | 0.1368 | 0.2736 | 0.0000 | 0.2736 | 0.2234 | 0.0000 | 0.2234 | 0.2234 | 0.0000 | 0.2234 |
| Turbine 2 | 742.60 | 0.00 | 78906.47 | 0.00 | | 609,670,000 | 0 | 637,684 | 0 | 0.0792 | 0.0000 | 0.0792 | 5.1101 | 0.0000 | 5.1101 | 0.5546 | 0.0000 | 0.5546 | 0.2377 | 0.0000 | 0.2377 | 0.1426 | 0.0000 | 0.1426 | 0.1426 | 0.0000 | 0.1426 |
| Duct Burner 1 | 733.20 | | 19287.32 | | | 137,980,000 | | 144,320 | | 0.0522 | | 0.0522 | 0.1259 | | 0.1259 | 0.0968 | | 0.0968 | 0.0057 | | 0.0057 | 0.0190 | | 0.0190 | 0.0190 | | 0.0190 |
| Duct Burner 2 | 681.90 | | 26159.21 | | | 111,260,000 | | 116,372 | | 0.0708 | | 0.0708 | 0.1707 | | 0.1707 | 0.1313 | | 0.1313 | 0.0077 | | 0.0077 | 0.0258 | | 0.0258 | 0.0258 | | 0.0258 |
| Boiler 2 | 254.50 | 7.70 | 13522.04 | 586.17 | | | | | | 0.0016 | 0.0005 | 0.0021 | 0.6900 | 0.0357 | 0.7258 | 0.0037 | 0.0064 | 0.0102 | 0.0040 | 0.0129 | 0.0169 | 0.0610 | 0.0229 | 0.0838 | 0.0610 | 0.0229 | 0.0838 |
| Boiler 4 | 474.30 | 3.30 | 19947.31 | 132.93 | | | | | | 0.0043 | 0.0001 | 0.0044 | 1.0261 | 0.0087 | 1.0348 | 0.0217 | 0.0020 | 0.0237 | 0.0059 | 0.0029 | 0.0087 | 0.0603 | 0.0046 | 0.0649 | 0.0603 | 0.0046 | 0.0649 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 296.60 | 0.00 | 2.39 | 0.00 | | | | | | 0.0050 | 0.0000 | 0.0050 | 0.0453 | 0.0000 | 0.0453 | 0.0471 | 0.0000 | 0.0471 | 0.0008 | 0.0000 | 0.0008 | 0.0133 | 0.0000 | 0.0133 | 0.0133 | 0.0000 | 0.0133 |
| Emissions Total | | | | | | | | | | 0.2588 | 0.0005 | 0.2593 | 12.6857 | 0.0444 | 12.7302 | 0.9921 | 0.0085 | 1.0006 | 0.5353 | 0.0158 | 0.5511 | 0.5454 | 0.0275 | 0.5729 | 0.5454 | 0.0275 | 0.5729 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.85 | 113.88 | 7.56 | 4.61 | 5.22 | 5.22 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility February 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 672.00 | 0.00 | 72222.85 | 0.00 | | 780,930,000 | 0 | 816,814 | 0 | 0.0363 | 0.0000 | 0.0363 | 4.3872 | 0.0000 | 4.3872 | 0.1088 | 0.0000 | 0.1088 | 0.2175 | 0.0000 | 0.2175 | 0.1777 | 0.0000 | 0.1777 | 0.1777 | 0.0000 | 0.1777 |
| Turbine 2 | 653.40 | 0.00 | 82222.13 | 0.00 | | 612,630,000 | 0 | 640,780 | 0 | 0.0826 | 0.0000 | 0.0826 | 5.3249 | 0.0000 | 5.3249 | 0.5779 | 0.0000 | 0.5779 | 0.2477 | 0.0000 | 0.2477 | 0.1486 | 0.0000 | 0.1486 | 0.1486 | 0.0000 | 0.1486 |
| Duct Burner 1 | 650.10 | | 14768.81 | | | 139,620,000 | | 146,036 | | 0.0400 | | 0.0400 | 0.0964 | | 0.0964 | 0.0741 | | 0.0741 | 0.0044 | | 0.0044 | 0.0146 | | 0.0146 | 0.0146 | | 0.0146 |
| Duct Burner 2 | 569.50 | | 17707.93 | | | 101,690,000 | | 106,363 | | 0.0479 | | 0.0479 | 0.1156 | | 0.1156 | 0.0889 | | 0.0889 | 0.0052 | | 0.0052 | 0.0174 | | 0.0174 | 0.0174 | | 0.0174 |
| Boiler 2 | 52.60 | 15.40 | 693.46 | 1451.12 | | | | | | 0.0001 | 0.0011 | 0.0012 | 0.0354 | 0.0885 | 0.1239 | 0.0002 | 0.0159 | 0.0161 | 0.0002 | 0.0320 | 0.0322 | 0.0031 | 0.0567 | 0.0598 | 0.0031 | 0.0567 | 0.0598 |
| Boiler 4 | 600.40 | 16.80 | 26055.66 | 942.35 | | | | | | 0.0056 | 0.0006 | 0.0062 | 1.3403 | 0.0616 | 1.4019 | 0.0283 | 0.0143 | 0.0426 | 0.0077 | 0.0203 | 0.0280 | 0.0788 | 0.0325 | 0.1113 | 0.0788 | 0.0325 | 0.1113 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 194.90 | 0.00 | 1.33 | 14.00 | | | | | | 0.0028 | 0.0000 | 0.0028 | 0.0252 | 0.0002 | 0.0254 | 0.0262 | 0.0000 | 0.0262 | 0.0004 | 0.0000 | 0.0004 | 0.0074 | 0.0001 | 0.0075 | 0.0074 | 0.0001 | 0.0075 |
| Emissions Total | | | | | | | | | | 0.2152 | 0.0018 | 0.2170 | 11.3250 | 0.1503 | 11.4752 | 0.9044 | 0.0303 | 0.9347 | 0.4831 | 0.0523 | 0.5354 | 0.4476 | 0.0893 | 0.5369 | 0.4476 | 0.0893 | 0.5369 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.84 | 114.04 | 7.62 | 4.68 | 5.26 | 5.26 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility March 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | scf/12-months NG | gal/12-months FO | mmbtu/12-months NG | mmbtu/12-months FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 387.50 | 0.00 | 45488.37 | 0.00 | | 737,520,000 | 0 | 771,409 | 0 | 0.0228 | 0.0000 | 0.0228 | 2.7632 | 0.0000 | 2.7632 | 0.0685 | 0.0000 | 0.0685 | 0.1370 | 0.0000 | 0.1370 | 0.1119 | 0.0000 | 0.1119 | 0.1119 | 0.0000 | 0.1119 |
| Turbine 2 | 618.50 | 0.00 | 77442.14 | 0.00 | | 598,630,000 | 0 | 626,137 | 0 | 0.0778 | 0.0000 | 0.0778 | 5.0153 | 0.0000 | 5.0153 | 0.5443 | 0.0000 | 0.5443 | 0.2333 | 0.0000 | 0.2333 | 0.1400 | 0.0000 | 0.1400 | 0.1400 | 0.0000 | 0.1400 |
| Duct Burner 1 | 358.40 | | 9037.01 | | | 140,480,000 | | 146,935 | | 0.0245 | | 0.0245 | 0.0590 | | 0.0590 | 0.0454 | | 0.0454 | 0.0027 | | 0.0027 | 0.0089 | | 0.0089 | 0.0089 | | 0.0089 |
| Duct Burner 2 | 603.00 | | 23397.90 | | | 105,940,000 | | 110,808 | | 0.0633 | | 0.0633 | 0.1527 | | 0.1527 | 0.1175 | | 0.1175 | 0.0069 | | 0.0069 | 0.0231 | | 0.0231 | 0.0231 | | 0.0231 |
| Boiler 2 | 236.60 | 0.00 | 14631.79 | 0.00 | | | | | | 0.0017 | 0.0000 | 0.0017 | 0.7467 | 0.0000 | 0.7467 | 0.0041 | 0.0000 | 0.0041 | 0.0043 | 0.0000 | 0.0043 | 0.0660 | 0.0000 | 0.0660 | 0.0660 | 0.0000 | 0.0660 |
| Boiler 4 | 731.20 | 0.00 | 35450.38 | 0.00 | | | | | | 0.0076 | 0.0000 | 0.0076 | 1.8236 | 0.0000 | 1.8236 | 0.0385 | 0.0000 | 0.0385 | 0.0105 | 0.0000 | 0.0105 | 0.1072 | 0.0000 | 0.1072 | 0.1072 | 0.0000 | 0.1072 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 187.80 | 0.00 | 2.28 | 0.00 | | | | | | 0.0048 | 0.0000 | 0.0048 | 0.0430 | 0.0000 | 0.0430 | 0.0448 | 0.0000 | 0.0448 | 0.0007 | 0.0000 | 0.0007 | 0.0126 | 0.0000 | 0.0126 | 0.0126 | 0.0000 | 0.0126 |
| Emissions Total | | | | | | | | | | 0.2025 | 0.0000 | 0.2025 | 10.6035 | 0.0000 | 10.6035 | 0.8630 | 0.0000 | 0.8630 | 0.3954 | 0.0000 | 0.3954 | 0.4697 | 0.0000 | 0.4697 | 0.4697 | 0.0000 | 0.4697 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.83 | 112.45 | 7.55 | 4.51 | 5.26 | 5.26 |
| | | OK | OK | OK | OK | OK | OK |

CP51494 - WEEKLY

GT 1
W/ D.B.

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:26:15
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 7 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.3 % |
| T-Stk | 286 °F |
| T-Air | 64.6 °F |
| EA | 231.0 % |
| CO(0) | 24 ppm |
| NO | 21.4 ppm |
| $NO_2$ | 6.4 ppm |
| NOx | 27.8 ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 7 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.77 LPM |

Comments:

19 GAS
9.35 MW

GT 2
W/ D.B.

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:39:18
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 6 ppm |
| Eff | 78.2 % |
| $CO_2$ | 3.6 % |
| T-Stk | 257 °F |
| T-Air | 52.8 °F |
| EA | 206.2 % |
| CO(0) | 21 ppm |
| NO | 16.3 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 20.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments:

37 GAS
9 MW

BOILER #4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:53:39
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.2 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 8.9 % |
| T-Stk | 530 °F |
| T-Air | 70.0 °F |
| EA | 29.5 % |
| CO(0) | 0 ppm |
| NO | 107 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 107 ppm |
| NO(15) | 40 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 40 ppm |
| Flow | 0.76 LPM |

Comments:

1075 ACFM GAS
57 Kpph STEAM

## EMISSION TEST COLLEGE

| Date: 1/3/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1321 | 1334 |
| Recorded Test | 1326 | 1339 |
| O2 | 15.1 % | 14.6 % |
| CO | 7 ppm | 6 ppm |
| Eff | 76.2 % | 78.2 % |
| CO2 | 3.3 % | 3.6 % |
| T-Stk | 286 °F | 257 °F |
| T-Air | 64.6 °F | 52.8 °F |
| EA | 231 % | 206.2 % |
| CO (15) | 24 ppm | 21 ppm |
| NO | 21.4 ppm | 16.3 ppm |
| NO2 | 6.4 ppm | 3.8 ppm |
| NOX | 27.8 ppm | 20.2 ppm |
| SO2 | *** | *** |
| NO (15) | 22 ppm | 15 ppm |
| NOX (15) | 28 ppm | 19 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 9.35 | 9 |
| KSCF/hour | 19 | 37 |

**Signature:** Evelyn Carter

19 GAS
9.35 MW

GT 1 W/ D.B.

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:26:15
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.1 % |
| CO | 7 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.3 % |
| T-Stk | 286 °F |
| T-Air | 64.6 °F |
| EA | 231.0 % |
| CO(0) | 24 ppm |
| NO | 21.4 ppm |
| $NO_2$ | 6.4 ppm |
| NOx | 27.8 ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 7 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.77 LPM |

Comments:

GT 2 W/ D.B

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:39:18
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.6 % |
| CO | 6 ppm |
| Eff | 78.2 % |
| $CO_2$ | 3.6 % |
| T-Stk | 257 °F |
| T-Air | 52.8 °F |
| EA | 206.2 % |
| CO(0) | 21 ppm |
| NO | 16.3 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 20.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments:

| Date: 1/3/22 | BLR 2 | BLR 4 | |
|---|---|---|---|
| Start Test | | 1238 | |
| Recorded Test | | 1253 | |
| O2 | | 5.2 % | |
| CO | | 0 ppm | |
| Eff | | 77.8 % | |
| CO2 | | 8.9 % | |
| T-Stk | | 530 °F | |
| T-Air | | 70 °F | |
| EA | | 29.5 % | |
| CO (15) | | 0 ppm | |
| NO | | 107 ppm | |
| NO2 | | 0 ppm | |
| NOX | | 107 ppm | |
| SO2 | | *** | |
| NO (15) | | 40 ppm | |
| NOX (15) | | 40 ppm | |
| SO2 (15 | | *** | |
| K lbs/hour | | 1075 | |

**Signature:** Evelyn Carter

BOILER #4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:53:39
Date: 01/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.2 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 8.9 % |
| T-Stk | 530 °F |
| T-Air | 70.0 °F |
| EA | 29.5 % |
| CO(0) | 0 ppm |
| NO | 107 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 107 ppm |
| NO(15) | 40 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 40 ppm |
| Flow | 0.76 LPM |

Comments:

37 GAS
9 mW

1075 ACFM GAS
57 kpph STEAM

NUTES AND THEN PRINT TEST RESULTS

ORM TO THIS SHEET

CP 51607

## EMISSION TEST COLLEGE I

| Date: 1/10/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0946 | 0631 |
| Recorded Test | 0951 | 0637 |
| O2 | 15.1% | 13.1% |
| CO | 6 ppm | 8 ppm |
| Eff | 76.6 % | 80.2% |
| CO2 | 3.3% | 4.4% |
| T-Stk | 281°F | 269°F |
| T-Air | 66.8°F | 61.5°F |
| EA | 230.9 % | 150.8% |
| CO (15) | 6ppm | 21 ppm |
| NO | 13.8 ppm | 27.0 ppm |
| NO2 | 4.0 ppm | 5.0 ppm |
| NOX | 17.8 ppm | 32.1 ppm |
| SO2 | *** | *** |
| NO (15) | 14 ppm | 21 ppm |
| NOX (15) | 18 ppm | 24 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 8.3 | 9.6 |
| KSCF/hour | 20 | 54 |

**Signature:**

GT 1 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:51:59 AM
Date: 01/10/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 6 ppm |
| Eff | 76.6 % |
| $CO_2$ | 3.3 % |
| T-Stk | 281 °F |
| T-Air | 66.8 °F |
| EA | 230.9 % |
| CO(15) | 6 ppm |
| NO | 13.8 ppm |
| $NO_2$ | 4.0 ppm |
| NOx | 17.8 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.75 LPM |

Comments:

GT 2B

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:37:26
Date: 01/10/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.1 % |
| CO | 8 ppm |
| Eff | 80.2 % |
| $CO_2$ | 4.4 % |
| T-Stk | 269 °F |
| T-Air | 61.5 °F |
| EA | 150.8 % |
| CO(0) | 21 ppm |
| NO | 27.0 ppm |
| $NO_2$ | 5.0 ppm |
| NOx | 32.1 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.78 LPM |

Comments:

| Date: 1/10/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0917 | | |
| Recorded Test | | 0923 | | |
| O2 | | 5.1% | | |
| CO | | 2 ppm | | |
| Eff | | 77.7% | | |
| CO2 | | 8.9% | | |
| T-Stk | | 533°F | | |
| T-Air | | 70.8°F | | |
| EA | | 29.0% | | |
| CO (15) | | 1 ppm | | |
| NO | | 98 ppm | | |
| NO2 | | 0.0 ppm | | |
| NOX | | 98 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 37 ppm | | |
| NOX (15) | | 37 ppm | | |
| SO2 (15 | | *** | | |
| K lbs/hour | | 116 | | |

**Signature:**

BLR 4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:43:43 AM
Date: 01/10/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.1 % |
| CO | 2 ppm |
| Eff | 77.7 % |
| $CO_2$ | 8.9 % |
| T-Stk | 533 °F |
| T-Air | 70.8 °F |
| EA | 29.0 % |
| CO(15) | 1 ppm |
| NO | 98 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 98 ppm |
| NO(15) | 37 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 37 ppm |
| Flow | 0.75 LPM |

Comments:

CP51833

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 1/17/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1632 | 1636 | | |
| Recorded Test | 1635 | 1639 | | |
| O2 | 14.6% | 14.3% | | |
| CO | 5 PPM | 6 PPM | | |
| Eff | 78.1% | 79.4% | | |
| CO2 | 3.5% | 3.7% | | |
| T-Stk | 269 °F | 249 °F | | |
| T-Air | 62.5 °F | 57 °F | | |
| EA | 207.6% | 193.3% | | |
| CO (15) | 5 PPM | 6 PPM | | |
| NO | 18.8 PPM | 18.6 PPM | | |
| NO2 | 4.3 PPM | 3.4 PPM | | |
| NOX | 23 PPM | 22 PPM | | |
| SO2 | *** PPM | *** PPM | | |
| NO (15) | 18 PPM | 17 PPM | | |
| NOX (15) | 22 PPM | 20 PPM | | |
| SO2 (15 | *** PPM | *** PPM | | |
| Mega Watts | 9.5 | 9 | | |
| KSCF/hour | 21 | 48 | | |

**Signature:** Kenneth Lee

| Date: 1/17/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1553 | | | |
| Recorded Test | 1608 | | | |
| O2 | 3.9% | | | |
| CO | 2 PPM | | | |
| Eff | 83.3% | | | |
| CO2 | 9.6% | | | |
| T-Stk | 354 °F | | | |
| T-Air | 68.9 °F | | | |
| EA | 20.6% | | | |
| CO (15) | 1 PPM | | | |
| NO | 51 PPM | | | |
| NO2 | 2.8 PPM | | | |
| NOX | 53 PPM | | | |
| SO2 | *** PPM | | | |
| NO (15) | 18 PPM | | | |
| NOX (15) | 19 PPM | | | |
| SO2 (15 | *** PPM | | | |
| K lbs/hour | 55 | | | |

**Signature:** Kenneth Lee

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 1 OB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 04:35:42 PM
Date: 01/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 5 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.5 % |
| T-Stk | 269 °F |
| T-Air | 62.5 °F |
| EA | 207.6 % |
| CO(15) | 5 ppm |
| NO | 18.8 ppm |
| $NO_2$ | 4.3 ppm |
| NOx | 23.0 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.74 LPM |

Comments:
MW - 8.5
KSCF - 21

GT2 OB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 04:39:47 PM
Date: 01/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 6 ppm |
| Eff | 79.4 % |
| $CO_2$ | 3.7 % |
| T-Stk | 249 °F |
| T-Air | 57.0 °F |
| EA | 193.3 % |
| CO(15) | 6 ppm |
| NO | 18.6 ppm |
| $NO_2$ | 3.4 ppm |
| NOx | 22.0 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.74 LPM |

Comments:
MW - 9
KSCF - 48

BLR 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 04:08:02 PM
Date: 01/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.9 % |
| CO | 2 ppm |
| Eff | 83.3 % |
| $CO_2$ | 9.6 % |
| T-Stk | 354 °F |
| T-Air | 68.9 °F |
| EA | 20.6 % |
| CO(15) | 1 ppm |
| NO | 51 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 53 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.75 LPM |

Comments:
Klbs/hr
55

CP52043

#1 GT W/ DUCT BURNER

#2 GT W/ DUCT BURNER

## EMISSION TEST COLLEGE

| Date: 1/24/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1057 | 1108 |
| Recorded Test | 1102 | 1113 |
| O2 | 14.6% | 14.4% |
| CO | 4 ppm | 7 ppm |
| Eff | 76.9% | 77.3% |
| CO2 | 3.6% | 3.6% |
| T-Stk | 298°F | 290°F |
| T-Air | 72.9°F | 65.6°F |
| EA | 205.4% | 199.3% |
| CO (15) | 4 ppm | 6 ppm |
| NO | 22.5 ppm | 20.8 ppm |
| NO2 | 4.4 ppm | 4.9 ppm |
| NOX | 26.9 ppm | 25.7 ppm |
| SO2 | *** | *** |
| NO (15) | 21 ppm | 19 ppm |
| NOX (15) | 25 ppm | 24 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 9 | 9.95 |
| KSCF/hour | 23 | 32 |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:02:17 AM
Date: 01/24/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 4 ppm |
| Eff | 76.9 % |
| $CO_2$ | 3.6 % |
| T-Stk | 298 °F |
| T-Air | 72.9 °F |
| EA | 205.4 % |
| CO(15) | 4 ppm |
| NO | 22.5 ppm |
| $NO_2$ | 4.4 ppm |
| NOx | 26.9 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 25 ppm |
| Flow | 0.75 LPM |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:13:29 AM
Date: 01/24/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.4 % |
| CO | 7 ppm |
| Eff | 77.3 % |
| $CO_2$ | 3.6 % |
| T-Stk | 290 °F |
| T-Air | 65.6 °F |
| EA | 199.3 % |
| CO(15) | 6 ppm |
| NO | 20.8 ppm |
| $NO_2$ | 4.9 ppm |
| NOx | 25.7 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.74 LPM |

**Signature:** Evelyn Carter

Comments:

4 MW
23

9.95
32

| Date: 1/24/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 1028 |
| Recorded Test | ~~10~~ | 1043 |
| O2 | | 5.9% |
| CO | | 0 ppm |
| Eff | | 79.1% |
| CO2 | | 8.5% |
| T-Stk | | 475°F |
| T-Air | | 74.6°F |
| EA | | 34.7% |
| CO (15) | | 0 ppm |
| NO | | 85 ppm |
| NO2 | | 1.2 ppm |
| NOX | | 86 ppm |
| SO2 | | *** |
| NO (15) | | 33 ppm |
| NOX (15) | | 34 ppm |
| SO2 (15 | | *** |
| K lbs/hour | | 45 |

#4 BOILER

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:43:12 AM
Date: 01/24/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.9 % |
| CO | 0 ppm |
| Eff | 79.1 % |
| $CO_2$ | 8.5 % |
| T-Stk | 475 °F |
| T-Air | 74.6 °F |
| EA | 34.7 % |
| CO(15) | 0 ppm |
| NO | 85 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 86 ppm |
| NO(15) | 33 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 34 ppm |
| Flow | 0.74 LPM |

**Signature:** Evelyn Carter

Comments:

45 Kpph

TO THIS SHEET

## EMISSION TEST COLLEGE PA

| Date: 1/31/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1452 | 1457 |
| Recorded Test | 1455 | 1500 |
| O2 | 14.3 % | 14.3 % |
| CO | 1 PPM | 3 PPM |
| Eff | 78.5 % | 78.1 % |
| CO2 | 3.7 % | 3.8 % |
| T-Stk | 276 °F | 282 °F |
| T-Air | 68.9 °F | 66 °F |
| EA | 194 % | 191 % |
| CO (15) | 1 PPM | 3 PPM |
| NO | 21.2 PPM | 19.7 PPM |
| NO2 | 3.7 PPM | 4.3 PPM |
| NOX | 24.9 PPM | 23.9 PPM |
| SO2 | *** | *** |
| NO (15) | 19 PPM | 17 PPM |
| NOX (15) | 22 PPM | 21 PPM |
| SO2 (15 | *** | *** |
| Mega Watts | 9.0 | 9.9 |
| KSCF/hour | 26 | 34 |

**Signature:** Kenneth Wil

GT 1 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:55:46 PM
Date: 01/31/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 1 ppm |
| Eff | 78.5 % |
| $CO_2$ | 3.7 % |
| T-Stk | 276 °F |
| T-Air | 68.9 °F |
| EA | 194.0 % |
| CO(15) | 1 ppm |
| NO | 21.2 ppm |
| $NO_2$ | 3.7 ppm |
| NOx | 24.9 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.75 LPM |

Comments:
MW - 9.0
KSCF/h - 26

GT 2 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 03:00:02 PM
Date: 01/31/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 3 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.8 % |
| T-Stk | 282 °F |
| T-Air | 66.0 °F |
| EA | 191.0 % |
| CO(15) | 3 ppm |
| NO | 19.7 ppm |
| $NO_2$ | 4.3 ppm |
| NOx | 23.9 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

Comments:
MW - 9.9
KSCF/h - 34

| Date: 1/31/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 1355 |
| Recorded Test | | 1450 |
| O2 | | 6.7 % |
| CO | | 0 PPM |
| Eff | | 78.9 % |
| CO2 | | 8 % |
| T-Stk | | 454 °F |
| T-Air | | 66.7 °F |
| EA | | 41.7 % |
| CO (15) | | 0 PPM |
| NO | | 77 PPM |
| NO2 | | 1.4 PPM |
| NOX | | 78 PPM |
| SO2 | | *** |
| NO (15) | | 32 PPM |
| NOX (15) | | 32 PPM |
| SO2 (15 | | *** |
| K lbs/hour | | 41 |

**Signature:** Kenneth Wil

UTES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

ISLK4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:50:20 PM
Date: 01/31/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.7 % |
| CO | 0 ppm |
| Eff | 78.9 % |
| $CO_2$ | 8.0 % |
| T-Stk | 454 °F |
| T-Air | 66.7 °F |
| EA | 41.7 % |
| CO(15) | 0 ppm |
| NO | 77 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 78 ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.75 LPM |

Comments:

Lbs/hr : 41

CP52459

## EMISSION TEST COLLEGE

| ate: 07FEB2022 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 1138 | 1129 |
| Recorded Test | 1143 | 1134 |
| O2 | 14.5 % | 14.7 % |
| CO | 2 ppm | 5 ppm |
| Eff | 76.2 % | 76.1 % |
| CO2 | 3.6 % | 3.5 % |
| T-Stk | 309 °F | 300 °F |
| T-Air | 69.2 °F | 66.7 °F |
| EA | 202.3 % | 213.0 % |
| CO (15) | 2 ppm | 5 ppm |
| NO | 20.5 ppm | 16.6 ppm |
| NO2 | 4.7 ppm | 5.5 ppm |
| NOX | 25.2 ppm | 22.1 ppm |
| SO2 | *** | *** |
| NO (15) | 19 ppm | 16 ppm |
| NOX (15) | 23 ppm | 21 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 8.8 | 9.75 |
| KSCF/hour | 19 | 24 |

**Signature:** Evelyn Carter

HRSG 1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:43:32 AM
Date: 02/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.5 % |
| CO | 2 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.6 % |
| T-Stk | 309 °F |
| T-Air | 69.2 °F |
| EA | 202.3 % |
| CO(15) | 2 ppm |
| NO | 20.5 ppm |
| $NO_2$ | 4.7 ppm |
| NOx | 25.2 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.74 LPM |

Comments: 8.8 MW
19 KSCF

HRSG 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:34:28 AM
Date: 02/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.7 % |
| CO | 5 ppm |
| Eff | 76.1 % |
| $CO_2$ | 3.5 % |
| T-Stk | 300 °F |
| T-Air | 66.7 °F |
| EA | 213.0 % |
| CO(15) | 5 ppm |
| NO | 16.6 ppm |
| $NO_2$ | 5.5 ppm |
| NOx | 22.1 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments: 9.75 MW
24 KSCF

| Date: 07 FEB 2022 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 1142 |
| Recorded Test | | 1207 |
| O2 | | 5.8 % |
| CO | | 0 ppm |
| Eff | | 78.9 % |
| CO2 | | 8.5 % |
| T-Stk | | 493 °F |
| T-Air | | 86.6 °F |
| EA | | 34.0 % |
| CO (15) | | 0 ppm |
| NO | | 81 ppm |
| NO2 | | 1.7 ppm |
| NOX | | 83 ppm |
| SO2 | | *** |
| NO (15) | | 32 ppm |
| NOX (15) | | 32 ppm |
| SO2 (15 | | *** |
| K lbs/hour | | 45 |

**Signature:** Evelyn Carter

#4 BOILER

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:07:22 PM
Date: 02/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.8 % |
| CO | 0 ppm |
| Eff | 78.9 % |
| $CO_2$ | 8.5 % |
| T-Stk | 493 °F |
| T-Air | 86.6 °F |
| EA | 34.0 % |
| CO(15) | 0 ppm |
| NO | 81 ppm |
| $NO_2$ | 1.7 ppm |
| NOx | 83 ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.75 LPM |

Comments: 45 STEAM

M TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 02/14/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1410 | 1415 | | |
| Recorded Test | 1414 | 1418 | | |
| O2 | 14.9 % | 14.1 % | | |
| CO | 5 PPM | 5 PPM | | |
| Eff | 76.7 % | 78.6 % | | |
| CO2 | 3.4 % | 3.8 % | | |
| T-Stk | 286 °F | 273 °F | | |
| T-Air | 65.1 °F | 61.3 °F | | |
| EA | 219.8 % | 185.7 % | | |
| CO (15) | 5 PPM | 4 PPM | | |
| NO | 19.4 PPM | 21.5 PPM | | |
| NO2 | 5.2 PPM | 4.0 PPM | | |
| NOX | 24.6 PPM | 25.5 PPM | | |
| SO2 | *** | *** | | |
| NO (15) | 19 PPM | 19 PPM | | |
| NOX (15) | 24 PPM | 22 PPM | | |
| SO2 (15 | *** | *** | | |
| Mega Watts | 9.2 | 10.2 | | |
| KSCF/hour | 19 | 40 | | |

**Signature:** Kenneth Cullen

MOBILE BLR

| Date: 02/14/22 | ~~BLR 3~~ | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1422 | 1416 | | |
| Recorded Test | 1437 | 1431 | | |
| O2 | 9.0 % | 6.1 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 79.6 % | 78.0 % | | |
| CO2 | 6.7 % | 8.3 % | | |
| T-Stk | 392 °F | 505 °F | | |
| T-Air | 77.2 °F | 73.3 °F | | |
| EA | 67.8 % | 37 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 35.9 PPM | 85 PPM | | |
| NO2 | 0 PPM | *** 1.6 | | |
| NOX | 25.9 PPM | 86 PPM | | |
| SO2 | *** | *** | *** | |
| NO (15) | 13 PPM | 34 PPM | | |
| NOX (15) | 13 PPM | 34 PPM | | |
| SO2 (15 | *** | *** | *** | |
| K lbs/hour | 14 | 45 | | |

**Signature:** Kenneth Cullen

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:14:38 PM
Date: 02/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.9 % |
| CO | 5 ppm |
| Eff | 76.7 % |
| $CO_2$ | 3.4 % |
| T-Stk | 286 °F |
| T-Air | 65.1 °F |
| EA | 219.8 % |
| CO(15) | 5 ppm |
| NO | 19.4 ppm |
| $NO_2$ | 5.2 ppm |
| NOx | 24.6 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.76 LPM |

Comments:

MW- 9.2

LSCFH- 19

GT2DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:18:35 PM
Date: 02/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.1 % |
| CO | 5 ppm |
| Eff | 78.6 % |
| $CO_2$ | 3.8 % |
| T-Stk | 273 °F |
| T-Air | 61.3 °F |
| EA | 185.7 % |
| CO(15) | 4 ppm |
| NO | 21.5 ppm |
| $NO_2$ | 4.0 ppm |
| NOx | 25.5 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.76 LPM |

Comments:

MW - 10.2

LSCFH - 40

DCR7

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:31:45 PM
Date: 02/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.1 % |
| CO | 0 ppm |
| Eff | 78.0 % |
| $CO_2$ | 8.3 % |
| T-Stk | 505 °F |
| T-Air | 73.3 °F |
| EA | 37.0 % |
| CO(15) | 0 ppm |
| NO | 85 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 86 ppm |
| NO(15) | 34 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 34 ppm |
| Flow | 0.73 LPM |

Comments:

LLbs/hr- 45

MOBILE BLR

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:37:33 PM
Date: 02/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.0 % |
| CO | 0 ppm |
| Eff | 79.6 % |
| $CO_2$ | 6.7 % |
| T-Stk | 392 °F |
| T-Air | 77.2 °F |
| EA | 67.8 % |
| CO(15) | 0 ppm |
| NO | 25.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 25.9 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.75 LPM |

Comments:

LLbs/hr 14

CD 52863

GT 1 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:34:02 AM
Date: 02/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.4 % |
| CO | 4 ppm |
| Eff | 75.0 % |
| $CO_2$ | 3.1 % |
| T-Stk | 300 °F |
| T-Air | 73.3 °F |
| EA | 249.6 % |
| CO(15) | 4 ppm |
| NO | 15.3 ppm |
| $NO_2$ | 4.9 ppm |
| NOx | 20.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.75 LPM |

Comments:
MW: 8.3
KSCF/hr: 6

GT2 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:40:09 AM
Date: 02/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.1 % |
| CO | 5 ppm |
| Eff | 75.7 % |
| $CO_2$ | 3.3 % |
| T-Stk | 299 °F |
| T-Air | 72.4 °F |
| EA | 233.5 % |
| CO(15) | 5 ppm |
| NO | 14.2 ppm |
| $NO_2$ | 5.8 ppm |
| NOx | 19.9 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 6 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.76 LPM |

Comments:
MW: 9.0
KSCF/hr: 20

BLR 4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:52:16 AM
Date: 02/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.2 % |
| CO | 0 ppm |
| Eff | 78.9 % |
| $CO_2$ | 6.6 % |
| T-Stk | 415 °F |
| T-Air | 83.1 °F |
| EA | 69.7 % |
| CO(15) | 0 ppm |
| NO | 62 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 64 ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.74 LPM |

Comments:
LLbs/hr: 20

CP 52863

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 2/21/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1130 | 1137 | | |
| Recorded Test | 1134 | 1140 | | |
| O2 | 15.4 % | 15.1 % | | |
| CO | 4 PPM | 5 PPM | | |
| Eff | 75 % | 75.7 % | | |
| CO2 | 3.1 % | 3.3 % | | |
| T-Stk | 300 °F | 299 °F | | |
| T-Air | 73.3 °F | 72.4 °F | | |
| EA | 249.6 % | 233.5 % | | |
| CO (15) | 4 PPM | 5 PPM | | |
| NO | 15.3 PPM | 14.2 PPM | | |
| NO2 | 4.9 PPM | 5.8 PPM | | |
| NOX | 20.3 PPM | 19.9 PPM | | |
| SO2 | --- | --- | | |
| NO (15) | 16 PPM | 14 PPM | | |
| NOX (15) | 22 PPM | 20 PPM | | |
| SO2 (15 | --- | --- | | |
| Mega Watts | 8.3 | 9.0 | | |
| KSCF/hour | 6 | 20 | | |

**Signature:** Kenneth Wil

| Date: 2/21/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 1137 | | |
| Recorded Test | | 1152 | | |
| O2 | | 9.2 % | | |
| CO | | 0 PPM | | |
| Eff | | 78.9 % | | |
| CO2 | | 6.6 % | | |
| T-Stk | | 415 °F | | |
| T-Air | | 83.1 °F | | |
| EA | | 69.7 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 62 PPM | | |
| NO2 | | 1.4 PPM | | |
| NOX | | 64 PPM | | |
| SO2 | | --- | | |
| NO (15) | | 31 PPM | | |
| NOX (15) | | 32 PPM | | |
| SO2 (15 | | --- | | |
| K lbs/hour | | 20 | | |

**Signature:** Kenneth Wil

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP53031 GT1DB GT2DB

## EMISSION TEST COLLEGE

| Date: 2/28/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0749 | 0755 |
| Recorded Test | 0754 | 0801 |
| O2 | 14.9 % | 14.1% |
| CO | 4ppm | 6ppm |
| Eff | 77.7 % | 78.1% |
| CO2 | 3.4 % | 3.8% |
| T-Stk | 270°F | 280°F |
| T-Air | 65.4°F | 61.2°F |
| EA | 219.1% | 185.7% |
| CO (15) | 4ppm | 5ppm |
| NO | 18.3ppm | 20.5ppm |
| NO2 | 5.0 ppm | 4.3ppm |
| NOX | 23.2ppm | 24.8ppm |
| SO2 | *** | *** |
| NO (15) | 18ppm | 18ppm |
| NOX (15) | 23ppm | 22ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 8.8 | 9.6 |
| KSCF/hour | 20 | 36 |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:54:40 AM
Date: 02/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.9 % |
| CO | 4 ppm |
| Eff | 77.7 % |
| $CO_2$ | 3.4 % |
| T-Stk | 270 °F |
| T-Air | 65.4 °F |
| EA | 219.1 % |
| CO(15) | 4 ppm |
| NO | 18.3 ppm |
| $NO_2$ | 5.0 ppm |
| NOx | 23.2 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.75 LPM |

Comments:

BACHARACH GT2DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:01:47 AM
Date: 02/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.1 % |
| CO | 6 ppm |
| Eff | 78.1 % |
| $CO_2$ | 3.8 % |
| T-Stk | 138 °C |
| T-Air | 16.2 °C |
| EA | 185.7 % |
| CO(15) | 5 ppm |
| NO | 20.5 ppm |
| $NO_2$ | 4.3 ppm |
| NOx | 24.8 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.75 LPM |

Comments:

| Date: 2/28/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 0726 |
| Recorded Test | | 0741 |
| O2 | | 5.5% |
| CO | | 0ppm |
| Eff | | 78.0% |
| CO2 | | 8.7% |
| T-Stk | | 514°F |
| T-Air | | 68.3°F |
| EA | | 31.9% |
| CO (15) | | 0ppm |
| NO | | 93ppm |
| NO2 | | 1.7ppm |
| NOX | | 95ppm |
| SO2 | | *** |
| NO (15) | | 36ppm |
| NOX (15) | | 36ppm |
| SO2 (15 | | *** |
| K lbs/hour | | 53K |

**Signature:** _____

PCA 400
SN: 20123585

BLR4

Time: 07:41:36 AM
Date: 02/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 78.0 % |
| $CO_2$ | 8.7 % |
| T-Stk | 514 °F |
| T-Air | 68.3 °F |
| EA | 31.9 % |
| CO(15) | 0 ppm |
| NO | 93 ppm |
| $NO_2$ | 1.7 ppm |
| NOx | 95 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.75 LPM |

Comments:

RM TO THIS SHEET

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 17 17 | 17 23 |
| Recorded Test | 17 22 | 17 28 |
| O2 | 14.0% | 14.9% |
| CO | 1 ppm | 6 ppm |
| Eff | 79.3% | 77.7% |
| CO2 | 3.9% | 3.4% |
| T-Stk | 280°F | 281°F |
| T-Air | 77.5°F | 76.6°F |
| EA | 181.9% | 219.0% |
| CO (15) | 4 ppm | 20 ppm |
| NO | 18.4 ppm | 12.4 ppm |
| NO2 | 3.2 ppm | 4.9 ppm |
| NOX | 21.5 ppm | 17.3 ppm |
| SO2 | *** | *** |
| NO (15) | 16 ppm | 12 ppm |
| NOX (15) | 19. ppm | 17 ppm |
| SO2 (15 | *** | *** |
| Mega Watts | 7.1 | 7.5 |
| KSCF/hour | 32 | 17 |

**Signature:**

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 1730 |
| Recorded Test | | 1745 |
| O2 | | 12.0% |
| CO | | 0 ppm |
| Eff | | 77.2% |
| CO2 | | 5.0% |
| T-Stk | | 400°F |
| T-Air | | 99.8°F |
| EA | | 120.1% |
| CO (15) | | 0 ppm |
| NO | | 34.6 ppm |
| NO2 | | 1.3 ppm |
| NOX | | 35.9 ppm |
| SO2 | | *** |
| NO (15) | | 23 ppm |
| NOX (15) | | 24 ppm |
| SO2 (15 | | *** |
| K lbs/hour | | 12 |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087 GT1

Time: 17:22:56
Date: 03/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.0 % |
| CO | 1 ppm |
| Eff | 79.3 % |
| $CO_2$ | 3.9 % |
| T-Stk | 280 °F |
| T-Air | 77.5 °F |
| EA | 181.9 % |
| CO(0) | 4 ppm |
| NO | 18.4 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 21.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087 GT2

Time: 17:28:58
Date: 03/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.9 % |
| CO | 6 ppm |
| Eff | 77.7 % |
| $CO_2$ | 3.4 % |
| T-Stk | 281 °F |
| T-Air | 76.7 °F |
| EA | 219.0 % |
| CO(0) | 20 ppm |
| NO | 12.4 ppm |
| $NO_2$ | 4.9 ppm |
| NOx | 17.3 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087 BLR4

Time: 17:45:13
Date: 03/07/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 12.0 % |
| CO | 0 ppm |
| Eff | 77.2 % |
| $CO_2$ | 5.0 % |
| T-Stk | 400 °F |
| T-Air | 99.8 °F |
| EA | 120.1 % |
| CO(0) | 0 ppm |
| NO | 34.6 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 35.9 ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.75 LPM |

Comments:

UTES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

CP53473

## EMISSION TEST COLLEGE

| Date: 3/14/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0812 | 0820 |
| Recorded Test | 0818 | 0826 |
| O2 | 14.7% | 14.5% |
| CO | 4 ppm | 6 ppm |
| Eff | 76.2% | 76.8% |
| CO2 | 3.5% | 3.6% |
| T-Stk | 310°F | 298°F |
| T-Air | 75.7°F | 67.9°F |
| EA | 210.9% | 202.5% |
| CO (15) | 13 ppm | 19 ppm |
| NO | 20.1 ppm | 18.0 ppm |
| NO2 | 4.9 ppm | 5.3 ppm |
| NOX | 25.0 ppm | 23.3 ppm |
| SO2 | XX | XX |
| NO (15) | 19 ppm | 17 ppm |
| NOX (15) | 24 ppm | 22 ppm |
| SO2 (15 | XX | XX |
| Mega Watts | 9.9 | 9.9 |
| KSCF/hour | 36 | 24 |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 18041087

GT 1DB

Time: 07:18:39
Date: 03/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.7 % |
| CO | 4 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.5 % |
| T-Stk | 310 °F |
| T-Air | 75.7 °F |
| EA | 210.9 % |
| CO(0) | 13 ppm |
| NO | 20.1 ppm |
| $NO_2$ | 4.9 ppm |
| NOx | 25.0 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.78 LPM |

Comments:

BACHARACH

GT 2DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:26:27
Date: 03/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.5 % |
| CO | 6 ppm |
| Eff | 76.8 % |
| $CO_2$ | 3.6 % |
| T-Stk | 298 °F |
| T-Air | 67.9 °F |
| EA | 202.5 % |
| CO(0) | 19 ppm |
| NO | 18.0 ppm |
| $NO_2$ | 5.3 ppm |
| NOx | 23.3 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

| Date: 3/14/22 | ~~BLR 2~~ Mobile | BLR 4 |
|---|---|---|
| Start Test | 0829 | 0745 |
| Recorded Test | 0845 | 0803 |
| O2 | 13.1% | 5.5% |
| CO | 0 ppm | 0 ppm |
| Eff | 74.5% | 77.7% |
| CO2 | 4.4% | 8.7% |
| T-Stk | 387°F | 535°F |
| T-Air | 69.0°F | 77.5°F |
| EA | 150.8% | 31.5% |
| CO (15) | 0 ppm | 0 ppm |
| NO | 18 ppm | 102 ppm |
| NO2 | 0 ppm | 0 ppm |
| NOX | 18 ppm | 102 ppm |
| SO2 | XX | XX |
| NO (15) | 14 ppm | 39 ppm |
| NOX (15) | 14 ppm | 39 ppm |
| SO2 (15 | XX | XX |
| K lbs/hour | 11 K (15%) | 45 K PPH |

**Signature:**

BACHARACH

Mobile BLR

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:45:50
Date: 03/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.1 % |
| CO | 0 ppm |
| Eff | 74.5 % |
| $CO_2$ | 4.4 % |
| T-Stk | 387 °F |
| T-Air | 69.0 °F |
| EA | 150.8 % |
| CO(0) | 0 ppm |
| NO | 18.0 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 18.0 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.79 LPM |

Comments:

BACHARACH

BLR 4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:03:03
Date: 03/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 77.7 % |
| $CO_2$ | 8.7 % |
| T-Stk | 535 °F |
| T-Air | 77.5 °F |
| EA | 31.5 % |
| CO(0) | 0 ppm |
| NO | 102 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 102 ppm |
| NO(15) | 39 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 39 ppm |
| Flow | 0.77 LPM |

Comments:

## EMISSION TEST COLLEGE PAI

| Date: 3/21/22 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | 1811 | |
| Recorded Test | | 1814 | |
| O2 | | 17.6 % | |
| CO | | 1 PPM | |
| Eff | | --- % | |
| CO2 | | --- % | |
| T-Stk | | 276 °F | |
| T-Air | | 81.3 °F | |
| EA | | --- % | |
| CO (15) | | --- PPM | |
| NO | | 10.6 PPM | |
| NO2 | | 0 PPM | |
| NOX | | 10.6 PPM | |
| SO2 | | --- PPM | |
| NO (15) | | --- PPM | |
| NOX (15) | | CORRECTED 18.4 PPM | |
| SO2 (15 | | --- | |
| Mega Watts | | 9.2 | |
| KSCF/hour | | 56 | |

**Signature:** Ken Wil

HRSG ~~1 DB~~ 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 18:14:14
Date: 03/21/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 17.6 % |
| CO | 1 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 276 °F |
| T-Air | 81.3 °F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 10.6 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 10.6 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | 18.4 ppm |
| Flow | 0.79 LPM |

Comments:

MW 9.2
1KSCF/hr 56

BLR4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 18:05:26
Date: 03/21/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 17.5 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 461 °F |
| T-Air | 75.2 °F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 20.8 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 20.8 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | 36.2 ppm |
| Flow | 0.79 LPM |

Comments:

K lbs/hr 37

| Date: 3/21/22 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | 1750 | | |
| Recorded Test | | 1805 | | |
| O2 | | 17.5 % | | |
| CO | | 0 PPM | | |
| Eff | | --- % | | |
| CO2 | | --- % | | |
| T-Stk | | 461 °F | | |
| T-Air | | 75.2 °F | | |
| EA | | --- % | | |
| CO (15) | | --- PPM | | |
| NO | | 20.8 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | CORRECTED 20.8 PPM | | |
| SO2 | | --- | | |
| NO (15) | | --- | | |
| NOX (15) | | CORRECTED 36.2 PPM | | |
| SO2 (15 | | --- | | |
| K lbs/hour | | 37 | | |

**Signature:** Ken Wil

NUTES AND THEN PRINT TEST RESULTS

) THEN PRINT TEST RESULTS

IS SHEET

CP 54123

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: 3/28/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1920 | 1912 | 1928 | |
| Recorded Test | 1935 | 1927 | 1943 | |
| O2 | 6.5 % | 8.2 % | 5.9 % | |
| CO | 7 PPM | 0 PPM | 1 PPM | |
| Eff | 79.4 % | 74.1 % | 78.7 % | |
| CO2 | 8.1 % | 7.2 % | 8.4 % | |
| T-Stk | 462 °F | 577 °F | 493 °F | |
| T-Air | 86 °F | 82.7 °F | 80.5 °F | |
| EA | 39.9 % | 57.6 % | 35.3 % | |
| CO (15) | 3 PPM | 0 PPM | 0 PPM | |
| NO | 56 PPM | 90 PPM | 21 PPM | |
| NO2 | 3 PPM | 1 PPM | 2 PPM | |
| NOX | 59 PPM | 91 PPM | 23 PPM | |
| SO2 | *** PPM | *** PPM | *** PPM | |
| NO (15) | 23 PPM | 42 PPM | | |
| NOX (15) | 24 PPM | 42 PPM | | |
| SO2 (15 | ***PPM | *** PPM | *** PPM | |
| K lbs/hour | 96 | 50 | 56 | |

**Signature:** Kenneth Wilde

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BLR 2

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:35:14 PM
Date: 03/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.5 % |
| CO | 7 ppm |
| Eff | 79.4 % |
| $CO_2$ | 8.1 % |
| T-Stk | 462 °F |
| T-Air | 86.0 °F |
| EA | 39.9 % |
| CO(15) | 3 ppm |
| NO | 56 ppm |
| $NO_2$ | 3 ppm |
| NOx | 59 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 24 ppm |
| $SO_2$(15) | **** ppm |

Comments:

1CLPS - 96

BLR 4

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:27:45 PM
Date: 03/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 8.2 % |
| CO | 0 ppm |
| Eff | 74.1 % |
| $CO_2$ | 7.2 % |
| T-Stk | 577 °F |
| T-Air | 82.7 °F |
| EA | 57.6 % |
| CO(15) | 0 ppm |
| NO | 90 ppm |
| $NO_2$ | 1 ppm |
| NOx | 91 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 42 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 42 ppm |
| $SO_2$(15) | **** ppm |

Comments:

1Klbs - 50

MOBILE

BACHARACH, INC.
PCA 3
SN: TP1006

Time: 07:43:17 PM
Date: 03/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.9 % |
| CO | 1 ppm |
| Eff | 78.7 % |
| $CO_2$ | 8.4 % |
| T-Stk | 493 °F |
| T-Air | 80.5 °F |
| EA | 35.3 % |
| CO(15) | 0 ppm |
| NO | 21 ppm |
| $NO_2$ | 2 ppm |
| NOx | 23 ppm |
| $SO_2$ | **** ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 9 ppm |
| $SO_2$(15) | **** ppm |

Comments:

1Klbs - 56

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

July 11, 2022

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of April 01, 2022 through June 30, 2022.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Mark Alexander, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility April 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 507.50 | 0.00 | 52862.31 | 0.00 | | 719,880,000 | 0 | 752,958 | 0 | 0.0265 | 0.0000 | 0.0265 | 3.2112 | 0.0000 | 3.2112 | 0.0796 | 0.0000 | 0.0796 | 0.1592 | 0.0000 | 0.1592 | 0.1300 | 0.0000 | 0.1300 | 0.1300 | 0.0000 | 0.1300 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 563,830,000 | 0 | 589,738 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 493.80 | | 20626.13 | | | 145,590,000 | | 152,280 | | 0.0558 | | 0.0558 | 0.1346 | | 0.1346 | 0.1035 | | 0.1035 | 0.0061 | | 0.0061 | 0.0203 | | 0.0203 | 0.0203 | | 0.0203 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 102,960,000 | | 107,691 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 287.70 | 0.00 | 21590.50 | 0.00 | | | | | | 0.0026 | 0.0000 | 0.0026 | 1.1018 | 0.0000 | 1.1018 | 0.0060 | 0.0000 | 0.0060 | 0.0064 | 0.0000 | 0.0064 | 0.0973 | 0.0000 | 0.0973 | 0.0973 | 0.0000 | 0.0973 |
| Boiler 4 | 698.80 | 0.00 | 30511.41 | 0.00 | | | | | | 0.0065 | 0.0000 | 0.0065 | 1.5695 | 0.0000 | 1.5695 | 0.0331 | 0.0000 | 0.0331 | 0.0090 | 0.0000 | 0.0090 | 0.0923 | 0.0000 | 0.0923 | 0.0923 | 0.0000 | 0.0923 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 88.00 | 0.00 | 448.71 | 0.00 | | | | | | 0.0009 | 0.0000 | 0.0009 | 0.0081 | 0.0000 | 0.0081 | 0.0084 | 0.0000 | 0.0084 | 0.0001 | 0.0000 | 0.0001 | 0.0024 | 0.0000 | 0.0024 | 0.0024 | 0.0000 | 0.0024 |
| Emissions Total | | | | | | | | | | 0.0924 | 0.0000 | 0.0924 | 6.0252 | 0.0000 | 6.0252 | 0.2307 | 0.0000 | 0.2307 | 0.1808 | 0.0000 | 0.1808 | 0.3424 | 0.0000 | 0.3424 | 0.3424 | 0.0000 | 0.3424 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.79 | 110.16 | 7.29 | 4.36 | 5.22 | 5.22 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility May 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | scf/12-months NG | gal/12-months FO | mmbtu/12-months NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 591.90 | 0.00 | 76385.73 | 0.00 | | 706,950,000 | 0 | 739,434 | 0 | 0.0383 | 0.0000 | 0.0383 | 4.6401 | 0.0000 | 4.6401 | 0.1150 | 0.0000 | 0.1150 | 0.2301 | 0.0000 | 0.2301 | 0.1879 | 0.0000 | 0.1879 | 0.1879 | 0.0000 | 0.1879 |
| Turbine 2 | 380.40 | 0.00 | 22833.09 | 0.00 | | 517,770,000 | 0 | 541,562 | 0 | 0.0229 | 0.0000 | 0.0229 | 1.4787 | 0.0000 | 1.4787 | 0.1605 | 0.0000 | 0.1605 | 0.0688 | 0.0000 | 0.0688 | 0.0413 | 0.0000 | 0.0413 | 0.0413 | 0.0000 | 0.0413 |
| Duct Burner 1 | 480.40 | | 18398.26 | | | 148,700,000 | | 155,533 | | 0.0498 | | 0.0498 | 0.1201 | | 0.1201 | 0.0924 | | 0.0924 | 0.0054 | | 0.0054 | 0.0181 | | 0.0181 | 0.0181 | | 0.0181 |
| Duct Burner 2 | 238.50 | | 11306.72 | | | 112,820,000 | | 118,004 | | 0.0306 | | 0.0306 | 0.0738 | | 0.0738 | 0.0568 | | 0.0568 | 0.0033 | | 0.0033 | 0.0111 | | 0.0111 | 0.0111 | | 0.0111 |
| Boiler 2 | 387.70 | 0.00 | 11211.54 | 0.00 | | | | | | 0.0013 | 0.0000 | 0.0013 | 0.5721 | 0.0000 | 0.5721 | 0.0031 | 0.0000 | 0.0031 | 0.0033 | 0.0000 | 0.0033 | 0.0505 | 0.0000 | 0.0505 | 0.0505 | 0.0000 | 0.0505 |
| Boiler 4 | 346.60 | 0.00 | 3236.17 | 0.00 | | | | | | 0.0007 | 0.0000 | 0.0007 | 0.1665 | 0.0000 | 0.1665 | 0.0035 | 0.0000 | 0.0035 | 0.0010 | 0.0000 | 0.0010 | 0.0098 | 0.0000 | 0.0098 | 0.0098 | 0.0000 | 0.0098 |
| Emerg. Gen. | | 0.50 | | 0.004 | 0.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 46.20 | 0.00 | 240.57 | 0.00 | | | | | | 0.0005 | 0.0000 | 0.0005 | 0.0043 | 0.0000 | 0.0043 | 0.0045 | 0.0000 | 0.0045 | 0.0001 | 0.0000 | 0.0001 | 0.0013 | 0.0000 | 0.0013 | 0.0013 | 0.0000 | 0.0013 |
| Emissions Total | | | | | | | | | | 0.1442 | 0.0000 | 0.1442 | 7.0557 | 0.0000 | 7.0557 | 0.4358 | 0.0000 | 0.4358 | 0.3120 | 0.0000 | 0.3120 | 0.3201 | 0.0000 | 0.3201 | 0.3201 | 0.0000 | 0.3201 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.77 | 106.79 | 6.94 | 4.18 | 5.15 | 5.15 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility June 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 698.80 | 0.00 | 87525.10 | 0.00 | | 705,280,000 | 0 | 737,688 | 0 | 0.0439 | 0.0000 | 0.0439 | 5.3168 | 0.0000 | 5.3168 | 0.1318 | 0.0000 | 0.1318 | 0.2636 | 0.0000 | 0.2636 | 0.2153 | 0.0000 | 0.2153 | 0.2153 | 0.0000 | 0.2153 |
| Turbine 2 | 720.00 | 0.00 | 90192.27 | 0.00 | | 525,730,000 | 0 | 549,887 | 0 | 0.0906 | 0.0000 | 0.0906 | 5.8410 | 0.0000 | 5.8410 | 0.6339 | 0.0000 | 0.6339 | 0.2717 | 0.0000 | 0.2717 | 0.1630 | 0.0000 | 0.1630 | 0.1630 | 0.0000 | 0.1630 |
| Duct Burner 1 | 697.20 | | 12844.27 | | | 151,320,000 | | 158,273 | | 0.0348 | | 0.0348 | 0.0838 | | 0.0838 | 0.0645 | | 0.0645 | 0.0038 | | 0.0038 | 0.0127 | | 0.0127 | 0.0127 | | 0.0127 |
| Duct Burner 2 | 22.20 | | 1004.11 | | | 113,390,000 | | 118,600 | | 0.0027 | | 0.0027 | 0.0066 | | 0.0066 | 0.0050 | | 0.0050 | 0.0003 | | 0.0003 | 0.0010 | | 0.0010 | 0.0010 | | 0.0010 |
| Boiler 2 | 58.50 | 0.00 | 2528.69 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.1290 | 0.0000 | 0.1290 | 0.0007 | 0.0000 | 0.0007 | 0.0007 | 0.0000 | 0.0007 | 0.0114 | 0.0000 | 0.0114 | 0.0114 | 0.0000 | 0.0114 |
| Boiler 4 | 37.00 | 0.00 | 1716.09 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.0883 | 0.0000 | 0.0883 | 0.0019 | 0.0000 | 0.0019 | 0.0005 | 0.0000 | 0.0005 | 0.0052 | 0.0000 | 0.0052 | 0.0052 | 0.0000 | 0.0052 |
| Emerg. Gen. | | 0.50 | | 0.004 | 1.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 35.20 | 0.00 | 138.07 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0025 | 0.0000 | 0.0025 | 0.0026 | 0.0000 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.0007 | 0.0000 | 0.0007 | 0.0007 | 0.0000 | 0.0007 |
| Emissions Total | | | | | | | | | | 0.1729 | 0.0000 | 0.1729 | 11.4680 | 0.0000 | 11.4680 | 0.8404 | 0.0000 | 0.8404 | 0.5407 | 0.0000 | 0.5407 | 0.4093 | 0.0000 | 0.4093 | 0.4093 | 0.0000 | 0.4093 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.78 | 106.68 | 7.00 | 4.19 | 5.14 | 5.14 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/29/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1613 | | | |
| Recorded Test | 1618 | | | |
| O2 | 13.9% | | | |
| CO | 1 ppm | | | |
| Eff | 79.5 % | | | |
| CO2 | 4.0 % | | | |
| T-Stk | 282°F | | | |
| T-Air | 79.9 °F | | | |
| EA | 175.7 % | | | |
| CO (15) | 2 ppm | | | |
| NO | 23.7ppm | | | |
| NO2 | 2.8 ppm | | | |
| NOX | 26.4ppm | | | |
| SO2 | *** | | | |
| NO (15) | 20 ppm | | | |
| NOX (15) | 22 ppm | | | |
| SO2 (15 | *** | | | |
| Mega Watts | 7.9 | | | |
| KSCF/hour | 38 | | | |

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

HASG 1

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 16:18:54
Date: 04/29/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.9 % |
| CO | 1 ppm |
| Eff | 79.5 % |
| $CO_2$ | 4.0 % |
| T-Stk | 282 °F |
| T-Air | 79.9 °F |
| EA | 175.7 % |
| CO(0) | 2 ppm |
| NO | 23.7 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 26.4 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments: 7.9 MW
38

HEN PRINT TEST RESULTS

HEN PRINT TEST RESULTS

HEET

CP54331

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

| Date: 4/4/22 | BLR 2 | BLR 4 | ~~MOBILE BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 0837 | 0829 | 1504 | |
| Recorded Test | 0852 | 0844 | 1519 | |
| O2 | 11.6 % | 6.3% | 9.3 % | |
| CO | 0 PPM | 0 PPM | 0 PPM | |
| Eff | 80.9 % | 77.5 % | 80.7 % | |
| CO2 | 5.3 % | 8.2 % | 6.6 % | |
| T-Stk | 303 °F | 513 °F | 345 °F | |
| T-Air | 75.8 °F | 68.4 °F | 65.9 °F | |
| EA | 110.3 % | 38 .3% | 71.1 % | |
| CO (15) | 0 PPM | 0 PPM | 1 PPM | |
| NO | 37.3 PPM | 94 PPM | 253 PPM | |
| NO2 | 1.1 PPM | 1.6 PPM | 0 PPM | |
| NOX | 38.4 PPM | 96 PPM | 25.8 PPM | |
| SO2 | *** PPM | *** PPM | *** PPM | |
| NO (15) | 24 PPM | 38 PPM | 13 PPM | |
| NOX (15) | 24 PPM | 39 PPM | 13 PPM | |
| SO2 (15 | *** PPM | *** PPM | *** PPM | |
| K lbs/hour | 15 | 50 | 0 | |

**Signature:** Kenneth Hall

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BUR'4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:52:14
Date: 04/04/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 11.6 % |
| CO | 0 ppm |
| Eff | 80.9 % |
| $CO_2$ | 5.3 % |
| T-Stk | 303 °F |
| T-Air | 75.8 °F |
| EA | 110.3 % |
| CO(0) | 0 ppm |
| NO | 37.3 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 38.4 ppm |
| NO(15) | 24 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.77 LPM |

Comments:

15

BCR4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:44:15
Date: 04/04/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.3 % |
| CO | 0 ppm |
| Eff | 77.5 % |
| $CO_2$ | 8.2 % |
| T-Stk | 513 °F |
| T-Air | 68.4 °F |
| EA | 38.3 % |
| CO(0) | 0 ppm |
| NO | 94 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 96 ppm |
| NO(15) | 38 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 39 ppm |
| Flow | 0.78 LPM |

Comments:

50

MOBILE

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 15:19:31
Date: 04/04/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 9.3 % |
| CO | 0 ppm |
| Eff | 80.7 % |
| $CO_2$ | 6.6 % |
| T-Stk | 345 °F |
| T-Air | 65.9 °F |
| EA | 71.1 % |
| CO(0) | 1 ppm |
| NO | 25.8 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 25.8 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.78 LPM |

Comments:

0

CP 54329

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/4/22 | GT 1 DB | GT 2 DB | GT1 | GT |
|---|---|---|---|---|
| Start Test | 0824 | | | |
| Recorded Test | 0827 | | | |
| O2 | 13.6 % | | | |
| CO | 2 PPM | | | |
| Eff | 79.7 % | | | |
| CO2 | 4.1 % | | | |
| T-Stk | 278 °F | | | |
| T-Air | 70.4 °F | | | |
| EA | 164.5% | | | |
| CO (15) | 6 PPM | | | |
| NO | 25.9 PPM | | | |
| NO2 | 3.5 PPM | | | |
| NOX | 29.3 PPM | | | |
| SO2 | *** PPM | | | |
| NO (15) | 21 PPM | | | |
| NOX (15) | 24 PPM | | | |
| SO2 (15 | *** PPM | | | |
| Mega Watts | 8.4 | | | |
| KSCF/hour | 33 | | | |

HRS BACHARACH GT 1 DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:27:29
Date: 04/04/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.6 % |
| CO | 2 ppm |
| Eff | 79.7 % |
| $CO_2$ | 4.1 % |
| T-Stk | 278 °F |
| T-Air | 70.4 °F |
| EA | 164.5 % |
| CO(0) | 6 ppm |
| NO | 25.9 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 29.3 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.79 LPM |

**Signature:** Kenneth Wilson

Comments:
MW - 8.4
KSCF/hr - 33

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/11/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0622 | | | |
| Recorded Test | 0627 | | | |
| O2 | 13.4% | | | |
| CO | 3 ppm | | | |
| Eff | 79.7% | | | |
| CO2 | 4.2% | | | |
| T-Stk | 287 °F | | | |
| T-Air | 77.5 °F | | | |
| EA | 160 % | | | |
| CO (15) | 8 ppm | | | |
| NO | 26.4 ppm | | | |
| NO2 | 3.5 ppm | | | |
| NOX | 29.9 ppm | | | |
| SO2 | *** | | | |
| NO (15) | 21 ppm | | | |
| NOX (15) | 24 ppm | | | |
| SO2 (15 | * ** | | | |
| Mega Watts | 8.9 | | | |
| KSCF/hour | 49 | | | |

**Signature:** Evelyn Carter

| Date: 4/11/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0547 | | |
| Recorded Test | | 0602 | | |
| O2 | | 6.1% | | |
| CO | | 0 ppm | | |
| Eff | | 77.3% | | |
| CO2 | | 8.4% | | |
| T-Stk | | 538 °F | | |
| T-Air | | 84.3 °F | | |
| EA | | 36.6% | | |
| CO (15) | | 0 ppm | | |
| NO | | 92 ppm | | |
| NO2 | | 0 ppm | | |
| NOX | | 92 ppm | | |
| SO2 | | * * * | | |
| NO (15) | | 36 ppm | | |
| NOX (15) | | 36 ppm | | |
| SO2 (15 | | * * * | | |
| K lbs/hour | | 60 Kpph | | |

**Signature:** Evelyn Carter

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 1

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:27:39
Date: 04/11/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.4 % |
| CO | 3 ppm |
| Eff | 79.7 % |
| $CO_2$ | 4.2 % |
| T-Stk | 287 °F |
| T-Air | 77.5 °F |
| EA | 160.0 % |
| CO(0) | 8 ppm |
| NO | 26.4 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 29.9 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.79 LPM |

Comments:

MW = 8.9

DB 49 ACFM

BOILER #4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:02:13
Date: 04/11/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.1 % |
| CO | 0 ppm |
| Eff | 77.3 % |
| $CO_2$ | 8.4 % |
| T-Stk | 538 °F |
| T-Air | 84.3 °F |
| EA | 36.6 % |
| CO(0) | 0 ppm |
| NO | 92 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 92 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.77 LPM |

Comments:

60 Kpph

1138 ACFM

CF54839

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

**Boiler**: RECORD TIME PROBE IS INSERTED (Start)

**GT**: RECORD TIME PROBE IS INSERTED (Start), WHEN FINISHED TESTING

| Date: 4/18/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 0858 | 0839 |
| Recorded Test | 0914 | 0854 |
| O2 | 4.6 % | 6.1 % |
| CO | 4 ppm | 0 ppm |
| Eff | 82.4 % | 77.8 % |
| CO2 | 9.2 % | 8.4 % |
| T-Stk | 391 °F | 512 °F |
| T-Air | 86.2 °F | 74.1 °F |
| EA | 25.0 % | 36.4 % |
| CO (15) | 5 ppm | 0 ppm |
| NO | 48.8 ppm | 91 ppm |
| NO2 | 2.9 ppm | 0.0 ppm |
| NOX | 52 ppm | 91 ppm |
| SO2 | XXX | XXX |
| NO (15) | 18 ppm | 36 ppm |
| NOX (15) | 19 ppm | 36 ppm |
| SO2 (15 | XXX | XXX |
| K lbs/hour | | |

**Signature:** _____

BACHARACH BLR2

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:14:12
Date: 04/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.6 % |
| CO | 4 ppm |
| Eff | 82.4 % |
| $CO_2$ | 9.2 % |
| T-Stk | 391 °F |
| T-Air | 86.2 °F |
| EA | 25.0 % |
| CO(0) | 5 ppm |
| NO | 48.8 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 52 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.79 LPM |

Comments:

BLR4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:54:45
Date: 04/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.1 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 8.4 % |
| T-Stk | 512 °F |
| T-Air | 74.1 °F |
| EA | 36.4 % |
| CO(0) | 0 ppm |
| NO | 91 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 91 ppm |
| NO(15) | 36 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.78 LPM |

Comments:

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:** _____

BOILER #4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:07:18
Date: 04/25/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.2 % |
| CO | 0 ppm |
| Eff | 80.3 % |
| $CO_2$ | 7.7 % |
| T-Stk | 432 °F |
| T-Air | 97.8 °F |
| EA | 47.1 % |
| CO(0) | 0 ppm |
| NO | 55 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 55 ppm |
| NO(15) | 24 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.78 LPM |

Comments: 30 Kpph 557

BOILER #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:47:07
Date: 04/25/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.5 % |
| CO | 10 ppm |
| Eff | 83.1 % |
| $CO_2$ | 9.2 % |
| T-Stk | 366 °F |
| T-Air | 84.9 °F |
| EA | 24.7 % |
| CO(0) | 13 ppm |
| NO | 38.9 ppm |
| $NO_2$ | 3.4 ppm |
| NOx | 42.3 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.78 LPM |

Comments: 55K pph 1240

| Date: 4/25/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test 12 | 12:32 | 12:52 |
| Recorded Test | 12:47 | 13:07 |
| O2 | 4.5% | 7.2% |
| CO | 10 ppm | 0 ppm |
| Eff | 83.1 | 80.3% |
| CO2 | 9.2% | 7.7% |
| T-Stk | 366 | 432 F |
| T-Air | 84.9 F | 97.8 F |
| EA | 24.7% | 47.1% |
| CO (15) | 13 ppm | 0 ppm |
| NO | 38.9 | 55 ppm |
| NO2 | 3.4 | 0 |
| NOX | 42.3 | 55 ppm |
| SO2 | — | — |
| NO (15) | 14 ppm | 24 ppm |
| NOX (15) | 15 ppm | 24 ppm |
| SO2 (15 | — | — |
| K lbs/hour | 55 kpph | 30 kpph |

**Signature:** N Jackson / Evelyn Carter

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

CP55097

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/2/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0739 | | | |
| Recorded Test | 0745 | | | |
| O2 | 13.2% | | | |
| CO | 1 ppm | | | |
| Eff | 80.5% | | | |
| CO2 | 4.3% | | | |
| T-Stk | 279 °F | | | |
| T-Air | 79.6 °F | | | |
| EA | 153.4% | | | |
| CO (15) | 3 ppm | | | |
| NO | 23.7 ppm | | | |
| NO2 | 3.1 ppm | | | |
| NOX | 26.8 ppm | | | |
| SO2 | ~~0~~ | | | |
| NO (15) | 18 ppm | | | |
| NOX (15) | 21 ppm | | | |
| SO2 (15 | ~~0~~ | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

BACHARACH, INC. GT1
PCA 400
SN: 18041087

Time: 06:45:33
Date: 05/02/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.2 % |
| CO | 1 ppm |
| Eff | 80.5 % |
| $CO_2$ | 4.3 % |
| T-Stk | 279 °F |
| T-Air | 79.6 °F |
| EA | 153.4 % |
| CO(0) | 3 ppm |
| NO | 23.7 ppm |
| $NO_2$ | 3.1 ppm |
| NOx | 26.8 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.81 LPM |

Comments:

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0718 | | | |
| Recorded Test | 0734 | | | |
| O2 | 7.6% | | | |
| CO | 0 ppm | | | |
| Eff | 80.5% | | | |
| CO2 | 7.5% | | | |
| T-Stk | 393 °F | | | |
| T-Air | 74.1 °F | | | |
| EA | 50.6% | | | |
| CO (15) | 0 ppm | | | |
| NO | 58 ppm | | | |
| NO2 | 0 ppm | | | |
| NOX | 58 ppm | | | |
| SO2 | ~~0~~ | | | |
| NO (15) | 26 ppm | | | |
| NOX (15) | 26 ppm | | | |
| SO2 (15 | ~~0~~ | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 06:34:20
Date: 05/02/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.6 % |
| CO | 0 ppm |
| Eff | 80.5 % |
| $CO_2$ | 7.5 % |
| T-Stk | 393 °F |
| T-Air | 74.1 °F |
| EA | 50.6 % |
| CO(0) | 0 ppm |
| NO | 58 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 58 ppm |
| NO(15) | 26 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.80 LPM |

Comments:

## EMISSION TEST COLLEGE PA

| Date: 5/9/22 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | 0928 | | |
| Recorded Test | 0931 | | |
| O2 | 13.4 % | | |
| CO | 2 ppm | | |
| Eff | 80.5% | | |
| CO2 | 4.3 % | | |
| T-Stk | 269°F | | |
| T-Air | 71.6°F | | |
| EA | 158.1% | | |
| CO (15) | 2 ppm | | |
| NO | 27.4 ppm | | |
| NO2 | 2.7 ppm | | |
| NOX | 30.1 ppm | | |
| SO2 | ~~0 ppm~~ 0 | | |
| NO (15) | 21 ppm | | |
| NOX (15) | 24 ppm | | |
| SO2 (15 | 0 | | |
| Mega Watts | 8.2 | ~~4~~ | |
| KSCF/hour | 48 | | |

**Signature:** William Watters

GT 1 DB

Ä"?¤"?¤?=±"

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:31:02 AM
Date: 05/09/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 2 ppm |
| Eff | 80.5 % |
| $CO_2$ | 4.3 % |
| T-Stk | 269 °F |
| T-Air | 71.6 °F |
| EA | 158.1 % |
| CO(15) | 2 ppm |
| NO | 27.4 ppm |
| $NO_2$ | 2.7 ppm |
| NOx | 30.1 ppm |
| NO(15) | 21 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.77 LPM |

BLR4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:53:45 AM
Date: 05/09/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.6 % |
| CO | 0 ppm |
| Eff | 80.3 % |
| $CO_2$ | 7.5 % |
| T-Stk | 421 °F |
| T-Air | 96.5 °F |
| EA | 50.8 % |
| CO(15) | 0 ppm |
| NO | 68 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 68 ppm |
| NO(15) | 30 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.75 LPM |

Comments:
MW: 8.2
K lbs/hr : 24

| Date: 5/9/22 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | 0938 | | |
| Recorded Test | | 0953 | | |
| O2 | | 7.6% | | |
| CO | | 0 ppm | | |
| Eff | | 80.3% | | |
| CO2 | | 7.5% | | |
| T-Stk | | 421°F | | |
| T-Air | | 96.5°F | | |
| EA | | 50.8% | | |
| CO (15) | | 0 ppm | | |
| NO | | 68 ppm | | |
| NO2 | | 0.0 ppm | | |
| NOX | | 68 ppm | | |
| SO2 | | 0 | | |
| NO (15) | | 30 ppm | | |
| NOX (15) | | 30 ppm | | |
| SO2 (15 | | 0 | | |
| K lbs/hour | 2 | 24 | | |

**Signature:** William Watters

Comments:
MW: 8.2
K lbs/hr : 48

UTES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

**EMISSION T** **GY**

| Date: | GT 1 DB | | | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

BACHARACH

BLR 4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:20:50 AM
Date: 05/11/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 9.8 % |
| T-Stk | 594 °F |
| T-Air | 96.7 °F |
| EA | 18.1 % |
| CO(15) | 0 ppm |
| NO | 104 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 107 ppm |
| NO(15) | 35 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.77 LPM |

Comments: K lbs/hr
79

**Signature:**

| Date: | BLR 2 | | | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT #2
No D.B
8.15 MW

**PARK ENERGY**

| Date: 5/14/22 | GT1 | GT2 |
|---|---|---|
| Start Test | | 1356 |
| Recorded Test | | 1401 |
| O2 | | 15.9% |
| CO | | 0 |
| Eff | | 73.7% |
| CO2 | | 2.8% |
| T-Stk | | 304 |
| T-Air | | 80.1 |
| EA | | 250% |
| CO (15) | | XXXX |
| NO | | 11.4 |
| NO2 | | 2. ppm |
| NOX | | 13.4 ppm |
| SO2 | | XXXX |
| NO (15) | | 13 ppm |
| NOX (15) | | 2 ppm |
| SO2 (15 | | XXXX |
| Mega Watts | | 8.15 MW |
| KSCF/hour | | |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 14:01:21
Date: 05/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 304 °F |
| T-Air | 80.1 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 11.4 ppm |
| $NO_2$ | 2.0 ppm |
| NOx | 13.4 ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.76 LPM |

Comments:

**Signature:** relyn Carter

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/15/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 01:55 |
| Recorded Test | | | | 0201 |
| O2 | | | | 15.9% |
| CO | | | | 0ppm |
| Eff | | | | 72.9% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 306°F |
| T-Air | | | | 71.8°F |
| EA | | | | 250% |
| CO (15) | | | | 0ppm |
| NO | | | | 13.7ppm |
| NO2 | | | | 3.3ppm |
| NOX | | | | 17.0ppm |
| SO2 | | | | ~~XXX~~ |
| NO (15) | | | | 16 ppm |
| NOX (15) | | | | 20 ppm |
| SO2 (15 | | | | ~~XXX~~ |
| Mega Watts | | | | 8.3 MW |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 02:01:22
Date: 05/15/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 72.9 % |
| $CO_2$ | 2.8 % |
| T-Stk | 306 °F |
| T-Air | 71.8 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 13.7 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 17.0 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.77 LPM |

Comments:

TO THIS SHEET

ES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/15/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | ~~1351~~ 1346 |
| Recorded Test | | | | 1351 |
| O2 | | | | 15.9% |
| CO | | | | 0 |
| Eff | | | | 74.3 % |
| CO2 | | | | 2.8% |
| T-Stk | | | | 310° |
| T-Air | | | | 95.3° |
| EA | | | | 250 % |
| CO (15) | | | | ~~XXXX~~ |
| NO | | | | 11.5 |
| NO2 | | | | 2.5 |
| NOX | | | | 14.0 |
| SO2 | | | | XXXX |
| NO (15) | | | | 14 |
| NOX (15) | | | | 17 |
| SO2 (15 | | | | XXXX |
| Mega Watts | | | | 7.6 MW |
| KSCF/hour | | | | |

**Signature:** N. Jackson Evelyn Carter

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** N. Jackson

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 13:51:20
Date: 05/15/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 74.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 310 °F |
| T-Air | 95.3 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 11.5 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 14.0 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.75 LPM |

Comments: NO DUCT BUR
7.6 MW

IEN PRINT TEST RESULTS

EN PRINT TEST RESULTS

ET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/16/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0145 |
| Recorded Test | | | | 0151 |
| O2 | | | | 15.9% |
| CO | | | | 0 ppm |
| Eff | | | | 73.3% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 318 °F |
| T-Air | | | | 87.3°F |
| EA | | | | 250% |
| CO (15) | | | | 0 ppm |
| NO | | | | 13.9 ppm |
| NO2 | | | | 3.4 ppm |
| NOX | | | | 17.3 ppm |
| SO2 | | | | |
| NO (15) | | | | 16 ppm |
| NOX (15) | | | | 20 ppm |
| SO2 (15 | | | | |
| Mega Watts | | | | 8.3MW |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 01:51:17
Date: 05/16/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 318 °F |
| T-Air | 87.3 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 13.9 ppm |
| $NO_2$ | 3.4 ppm |
| NOx | 17.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.77 LPM |

Comments:

15 MINUTES AND THEN PRINT TEST RESULTS

MINUTES AND THEN PRINT TEST RESULTS

H FORM TO THIS SHEET

## EMISSION TEST COLLEGE

| Date: 5/16/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 1233 |
| Recorded Test | | 12:38 |
| O2 | | 13.9 % |
| CO | | 6 ppm |
| Eff | | 81.0 % |
| CO2 | | 4.0 % |
| T-Stk | | 264° |
| T-Air | | 87.3° |
| EA | | 174.9% |
| CO (15) | | XXXX |
| NO | | 18.8 ppm |
| NO2 | | 3.5 ppm |
| NOX | | 22.3 ppm |
| SO2 | | XXXX |
| NO (15) | | 16 ppm |
| NOX (15) | | 3 ppm |
| SO2 (15 | | XXXX |
| Mega Watts | | 8.1 mw |
| KSCF/hour | | |

**Signature:** Nathaniel Jackson

#2 GT

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 12:38:34
Date: 05/16/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.9 % |
| CO | 6 ppm |
| Eff | 81.0 % |
| $CO_2$ | 4.0 % |
| T-Stk | 264 °F |
| T-Air | 87.3 °F |
| EA | 174.9 % |
| CO(0) | 16 ppm |
| NO | 18.8 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 22.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments: 8.1 MW
43 DUCT BURNER

BOILER #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:01:10 PM
Date: 05/16/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.1 % |
| CO | 27 ppm |
| Eff | 83.8 % |
| $CO_2$ | 7.8 % |
| T-Stk | 305 °F |
| T-Air | 79.2 °F |
| EA | 45.5 % |
| CO(15) | 11 ppm |
| NO | 30.1 ppm |
| $NO_2$ | 8.0 ppm |
| NOx | 38.1 ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.76 LPM |

Comments:
20 Kpph

| Date: 5/16/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | ~~13:01~~ 1246 | |
| Recorded Test | 1301 | |
| O2 | 7.1 % | |
| CO | 27 ppm | |
| Eff | 83.8 % | |
| CO2 | 7.8 % | |
| T-Stk | 305° | |
| T-Air | 79.2 ~~45.5 %~~ | |
| EA | 45.5 % | |
| CO (15) | 11 ppm | |
| NO | 30.1 ppm | |
| NO2 | 8 ppm | |
| NOX | 38.1 ppm | |
| SO2 | XXXX | |
| NO (15) | 13 ppm | |
| NOX (15) | 16 ppm | |
| SO2 (15 | XXXX | |
| K lbs/hour | | |

**Signature:** Nathaniel Jackson Evelyn Carter

TO THIS SHEET

IES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0159 | | |
| Recorded Test | | 0202 | | |
| O2 | | 13.9 % | | |
| CO | | 4 ppm | | |
| Eff | | 80.3 % | | |
| CO2 | | 4.0 % | | |
| T-Stk | | 274 °F | | |
| T-Air | | 86.9 °F | | |
| EA | | 176.2 % | | |
| CO (15) | | 3 ppm | | |
| NO | | 23 ppm | | |
| NO2 | | 2.8 ppm | | |
| NOX | | 25.7 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 19 ppm | | |
| NOX (15) | | 22 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.6 | | |
| KSCF/hour | | 43 | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:02:29 AM
Date: 05/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.9 % |
| CO | 4 ppm |
| Eff | 80.3 % |
| $CO_2$ | 4.0 % |
| T-Stk | 274 °F |
| T-Air | 86.9 °F |
| EA | 176.2 % |
| CO(15) | 3 ppm |
| NO | 23.0 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 25.7 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:

RM TO THIS SHEET

INUTES AND THEN PRINT TEST RESULTS

MINUTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PAR

#2 GT w/ DUCT BURNER

| Date: 5/17/22 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | 1409 | |
| Recorded Test | | 1414 | |
| O2 | | 14.3 % | |
| CO | | 3 ppm | |
| Eff | | 79.8 % | |
| CO2 | | 3.7 % | |
| T-Stk | | 277°F | |
| T-Air | | 90.3°F | |
| EA | | 192.9 % | |
| CO (15) | | 3 ppm | |
| NO | | 21.8ppm | |
| NO2 | | 2.8 ppm | |
| NOX | | 24.6 ppm | |
| SO2 | | xxx | |
| NO (15) | | 20 ppm | |
| NOX (15) | | 22 ppm | |
| SO2 (15 | | xxx | |
| Mega Watts | | 7.5 | |
| KSCF/hour | | 32 | |

BACHARACH
BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:14:57 PM
Date: 05/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 3 ppm |
| Eff | 79.8 % |
| $CO_2$ | 3.7 % |
| T-Stk | 277 °F |
| T-Air | 90.3 °F |
| EA | 192.9 % |
| CO(15) | 3 ppm |
| NO | 21.8 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 24.6 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.76 LPM |

Comments:

7.5 MW
32 KSCFH

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | B |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

**Signature:** _____

GT: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

NUTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PAR

#2 GT w/ DUCT BURNER

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:14:57 PM
Date: 05/17/22

Fuel
NGAS

| Date: 5/17/22 | GT 1 DB | GT 2 DB | ( |
|---|---|---|---|
| Start Test | | 1409 | |
| Recorded Test | | 1414 | |
| O2 | | 14.3 % | |
| CO | | 3 ppm | |
| Eff | | 79.8 % | |
| CO2 | | 3.7 % | |
| T-Stk | | 277 °F | |
| T-Air | | 90.3 °F | |
| EA | | 192.9 % | |
| CO (15) | | 3 ppm | |
| NO | | 21.8ppm | |
| NO2 | | 2.8 ppm | |
| NOX | | 24.6 ppm | |
| SO2 | | xxx | |
| NO (15) | | 20 ppm | |
| NOX (15) | | 22 ppm | |
| SO2 (15 | | xxx | |
| Mega Watts | | 7.5 | |
| KSCF/hour | | 32 | |

| | |
|---|---|
| $O_{2:}$ | 14.3 % |
| CO | 3 ppm |
| Eff | 79.8 % |
| $CO_2$ | 3.7 % |
| T-Stk | 277 °F |
| T-Air | 90.3 °F |
| EA | 192.9 % |
| CO(15) | 3 ppm |
| NO | 21.8 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 24.6 ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.76 LPM |

Comments:

7.5 MW
32 KSCFH

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | BL |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

**Signature:** _____

GT: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 05/18/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0206 | | |
| Recorded Test | | 0209 | | |
| O2 | | 13.5 % | | |
| CO | | 4 PPM | | |
| Eff | | 80.2 % | | |
| CO2 | | 4.2 % | | |
| T-Stk | | 288 °F | | |
| T-Air | | 87.9 °F | | |
| EA | | 162 % | | |
| CO (15) | | 3 PPM | | |
| NO | | 24.7 PPM | | |
| NO2 | | 3 PPM | | |
| NOX | | 27.7 PPM | | |
| SO2 | | X+X | | |
| NO (15) | | 20 PPM | | |
| NOX (15) | | 22PPM | | |
| SO2 (15 | | X+X | | |
| Mega Watts | | 8.6 | | |
| KSCF/hour | | 47 | | |

**Signature:** Kenneth Wal

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:09:01 AM
Date: 05/18/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.5 % |
| CO | 4 ppm |
| Eff | 80.2 % |
| $CO_2$ | 4.2 % |
| T-Stk | 288 °F |
| T-Air | 87.9 °F |
| EA | 162.0 % |
| CO(15) | 3 ppm |
| NO | 24.7 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 27.7 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:
MW - 8.6
1KSCF - 47

TO THIS SHEET
ES AND THEN PRINT TEST RESULTS
ES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/18/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1411 | | |
| Recorded Test | | 1416 | | |
| O2 | | 14.2% | | |
| CO | | 4 ppm | | |
| Eff | | 79.5 % | | |
| CO2 | | 3.8 % | | |
| T-Stk | | 284°F | | |
| T-Air | | 88.3°F | | |
| EA | | 186.9% | | |
| CO (15) | | 3 ppm | | |
| NO | | 21.4ppm | | |
| NO2 | | 2.8ppm | | |
| NOX | | 24.2 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 19 ppm | | |
| NOX (15) | | 21 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.09 | | |
| KSCF/hour | | 30 | | |

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:16:27 PM
Date: 05/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.2 % |
| CO | 4 ppm |
| Eff | 79.5 % |
| $CO_2$ | 3.8 % |
| T-Stk | 284 °F |
| T-Air | 88.3 °F |
| EA | 186.9 % |
| CO(15) | 3 ppm |
| NO | 21.4 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 24.2 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

8.09 MW
30kscfh

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/18/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1411 | | |
| Recorded Test | | 1416 | | |
| O2 | | 14.2% | | |
| CO | | 4 ppm | | |
| Eff | | 79.5 % | | |
| CO2 | | 3.8 % | | |
| T-Stk | | 284°F | | |
| T-Air | | 88.3°F | | |
| EA | | 186.9% | | |
| CO (15) | | 3 ppm | | |
| NO | | 21.4ppm | | |
| NO2 | | 2.8ppm | | |
| NOX | | 24.2 ppm | | |
| SO2 | | *** | | |
| NO (15) | | 19 ppm | | |
| NOX (15) | | 21 ppm | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 8.09 | | |
| KSCF/hour | | 30 | | |

**Signature:** Evelyn Carter

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:16:27 PM
Date: 05/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.2 % |
| CO | 4 ppm |
| Eff | 79.5 % |
| $CO_2$ | 3.8 % |
| T-Stk | 284 °F |
| T-Air | 88.3 °F |
| EA | 186.9 % |
| CO(15) | 3 ppm |
| NO | 21.4 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 24.2 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

8.09 MW
30kscfh

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 01:23 am | | |
| Recorded Test | | 01:26 am | | |
| O2 | | 13.7% | | |
| CO | | 4 ppm | | |
| Eff | | 80.1% | | |
| CO2 | | 4.1% | | |
| T-Stk | | 283 °F | | |
| T-Air | | 87.3°F | | |
| EA | | 169.4% | | |
| CO (15) | | 3 ppm | | |
| NO | | 22.3 ppm | | |
| NO2 | | 3.1 ppm | | |
| NOX | | 25.3 ppm | | |
| SO2 | | | | |
| NO (15) | | 18 ppm | | |
| NOX (15) | | 21 ppm | | |
| SO2 (15 | | | | |
| Mega Watts | | 8.8 | | |
| KSCF/hour | | 49 | | |

**Signature:** William Hoffa

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:23:37 AM
Date: 05/19/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.7 % |
| CO | 4 ppm |
| Eff | 80.1 % |
| $CO_2$ | 4.1 % |
| T-Stk | 283 °F |
| T-Air | 87.3 °F |
| EA | 169.4 % |
| CO(15) | 3 ppm |
| NO | 22.3 ppm |
| $NO_2$ | 3.1 ppm |
| NOx | 25.3 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:
MW: 8.8
KSCF: 49

TES AND THEN PRINT TEST RESULTS

ES AND THEN PRINT TEST RESULTS

O THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | [illegible]02 | | |
| Recorded Test | | 1408 | | |
| O2 | | 13.2% | | |
| CO | | 6 ppm | | |
| Eff | | 81.6% | | |
| CO2 | | 4.4% | | |
| T-Stk | | 269°F | | |
| T-Air | | 89.0°F | | |
| EA | | 151.9% | | |
| CO (15) | | 5 ppm | | |
| NO | | 20.2 ppm | | |
| NO2 | | 3.5 ppm | | |
| NOX | | 23.7 ppm | | |
| SO2 | | **** | | |
| NO (15) | | 15 ppm | | |
| NOX (15) | | 18 ppm | | |
| SO2 (15 | | **** | | |
| Mega Watts | | 7.5 MW | | |
| KSCF/hour | | 52 | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

GT2D1

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:08:35 PM
Date: 05/19/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.2 % |
| CO | 6 ppm |
| Eff | 81.6 % |
| $CO_2$ | 4.4 % |
| T-Stk | 269 °F |
| T-Air | 89.0 °F |
| EA | 151.9 % |
| CO(15) | 5 ppm |
| NO | 20.2 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 23.7 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.78 LPM |

Comments:

TO THIS SHEET

UTES AND THEN PRINT TEST RESULTS

INUTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1:55am | | |
| Recorded Test | | 1:59am | | |
| O2 | | 13.6% | | |
| CO | | 3 ppm | | |
| Eff | | 80% | | |
| CO2 | | 4.1% | | |
| T-Stk | | 292°F | | |
| T-Air | | 91.1°F | | |
| EA | | 166.2% | | |
| CO (15) | | 2 ppm | | |
| NO | | 20.7 ppm | | |
| NO2 | | 2.9 ppm | | |
| NOX | | 23.6ppm | | |
| SO2 | | | | |
| NO (15) | | 17 ppm | | |
| NOX (15) | | 19 ppm | | |
| SO2 (15 | | | | |
| Mega Watts | | 8.5 | | |
| KSCF/hour | | 44 | | |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:59:04 AM
Date: 05/20/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.6 % |
| CO | 3 ppm |
| Eff | 80.0 % |
| $CO_2$ | 4.1 % |
| T-Stk | 292 °F |
| T-Air | 91.1 °F |
| EA | 166.2 % |
| CO(15) | 2 ppm |
| NO | 20.7 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 23.6 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.76 LPM |

Comments:

8.5
44

**Signature:** William Whitaker

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

UTES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

Simple cycle

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/20/22 | GT 1 DB | GT 2 ~~DB~~ | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1346 | | |
| Recorded Test | | 1353 | | |
| O2 | | 15.1% | | |
| CO | | 5 ppm | | |
| Eff | | 78.7% | | |
| CO2 | | 3.3% | | |
| T-Stk | | 280° | | |
| T-Air | | 96.3° | | |
| EA | | 230.4% | | |
| CO (15) | | 6 ppm | | |
| NO | | 12.8 ppm | | |
| NO2 | | 3.5 ppm | | |
| NOX | | 16.3 ppm | | |
| SO2 | | ~~0.0~~ | | |
| NO (15) | | 13 ppm | | |
| NOX (15) | | 16 ppm | | |
| SO2 (15 | | 0.0 | | |
| Mega Watts | | 7.3MW | | |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:53:33 PM
Date: 05/20/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.1 % |
| CO | 5 ppm |
| Eff | 78.7 % |
| $CO_2$ | 3.3 % |
| T-Stk | 280 °F |
| T-Air | 96.3 °F |
| EA | 230.4 % |
| CO(15) | 6 ppm |
| NO | 12.8 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 16.3 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.77 LPM |

Comments:

15 MINUTES AND THEN PRINT TEST RESULTS

INUTES AND THEN PRINT TEST RESULTS

RM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/21/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | 13.5% | | |
| CO | | 3 PPM | | |
| Eff | | 81.6 % | | |
| CO2 | | 4.2 % | | |
| T-Stk | | 273 °F | | |
| T-Air | | 100.4 °F | | |
| EA | | 164.0 % | | |
| CO (15) | | 3 PPM | | |
| NO | | 19.5 PPM | | |
| NO2 | | 2.2 PPM | | |
| NOX | | 21.7 PPM | | |
| SO2 | | *** | | |
| NO (15) | | 16 PPM | | |
| NOX (15) | | 17 PPM | | |
| SO2 (15 | | *** | | |
| Mega Watts | | 7.3 | | |
| KSCF/hour | | 39 | | |

**Signature:** Kenneth Lee

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:45:20 AM
Date: 05/21/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.5 % |
| CO | 3 ppm |
| Eff | 81.6 % |
| $CO_2$ | 4.2 % |
| T-Stk | 273 °F |
| T-Air | 100.4 °F |
| EA | 164.0 % |
| CO(15) | 3 ppm |
| NO | 19.5 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 21.7 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

MW - 7.3
KSCFH - 39

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

I TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/21/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 0520 |
| Recorded Test | | | | 0526 |
| O2 | | | | 15.9% |
| CO | | | | 0 ppm |
| Eff | | | | 75.3% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 307°F |
| T-Air | | | | 105.2°F |
| EA | | | | 250% |
| CO (15) | | | | 0 ppm |
| NO | | | | 11.0 ppm |
| NO2 | | | | 2.1 ppm |
| NOX | | | | 13.1 ppm |
| SO2 | | | | ~~X~~ |
| NO (15) | | | | 13 ppm |
| NOX (15) | | | | 16 ppm |
| SO2 (15 | | | | ~~X~~ |
| Mega Watts | | | | 6.98 MW |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

?≈±°

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 05:26:43 PM
Date: 05/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.9 % |
| CO | 0 ppm |
| Eff | 75.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 307 °F |
| T-Air | 105.2 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 11.0 ppm |
| $NO_2$ | 2.1 ppm |
| NOx | 13.1 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.78 LPM |

Comments:

'M TO THIS SHEET

ES AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 02:25am |
| Recorded Test | | | | 02:29am |
| O2 | | | | 15.9% |
| CO | | | | 0ppm |
| Eff | | | | 74.9% |
| CO2 | | | | 2.8% |
| T-Stk | | | | 310 °F |
| T-Air | | | | 99.4°F |
| EA | | | | 250.0% |
| CO (15) | | | | 0ppm |
| NO | | | | 12.5 ppm |
| NO2 | | | | 2.4 ppm |
| NOX | | | | 14.9 ppm |
| SO2 | | | | |
| NO (15) | | | | 15 ppm |
| NOX (15) | | | | 17 ppm |
| SO2 (15 | | | | |
| Mega Watts | | | | 7.6 |
| KSCF/hour | | | | |

**Signature:** William Lowe

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:29:14 AM
Date: 05/22/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 74.9 % |
| $CO_2$ | 2.8 % |
| T-Stk | 310 °F |
| T-Air | 99.4 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12.5 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 14.9 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

7.6 ~~7.5~~ 0

'ORM TO THIS SHEET

NUTES AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/23/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | ~~0700~~ | | | |
| Recorded Test | 0706 | | | |
| O2 | 13.9% | | | |
| CO | 3 ppm | | | |
| Eff | 79.5% | | | |
| CO2 | 4.0% | | | |
| T-Stk | 288 of | | | |
| T-Air | 85.5 of | | | |
| EA | 176.6% | | | |
| CO (15) | 2 ppm | | | |
| NO | 22.4 ppm | | | |
| NO2 | 2.9 ppm | | | |
| NOX | 25.3 ppm | | | |
| SO2 | ~~0~~ | | | |
| NO (15) | 19 ppm | | | |
| NOX (15) | 21 ppm | | | |
| SO2 (15 | ~~0~~ | | | |
| Mega Watts | 5.0 | | | |
| KSCF/hour | 38 | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:06:38 AM
Date: 05/23/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.9 % |
| CO | 3 ppm |
| Eff | 79.5 % |
| $CO_2$ | 4.0 % |
| T-Stk | 288 °F |
| T-Air | 85.5 °F |
| EA | 176.6 % |
| CO(15) | 2 ppm |
| NO | 22.4 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 25.3 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

| Date: 5/23/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0720 | | | |
| Recorded Test | 0736 | | | |
| O2 | 7.3% | | | |
| CO | 24 ppm | | | |
| Eff | 84.0% | | | |
| CO2 | 7.7% | | | |
| T-Stk | 307 of | | | |
| T-Air | 93.3 of | | | |
| EA | 48.2% | | | |
| CO (15) | 10 ppm | | | |
| NO | 35.7 ppm | | | |
| NO2 | 7.6 ppm | | | |
| NOX | 43.3 ppm | | | |
| SO2 | ~~0~~ | | | |
| NO (15) | 16 ppm | | | |
| NOX (15) | 19 ppm | | | |
| SO2 (15 | ~~0~~ | | | |
| K lbs/hour | 20 Kpph | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:36:04 AM
Date: 05/23/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.3 % |
| CO | 24 ppm |
| Eff | 84.0 % |
| $CO_2$ | 7.7 % |
| T-Stk | 307 °F |
| T-Air | 93.3 °F |
| EA | 48.2 % |
| CO(15) | 10 ppm |
| NO | 35.7 ppm |
| $NO_2$ | 7.6 ppm |
| NOx | 43.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.76 LPM |

Comments:

CP 561146

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/30/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0654 | 0650 | |
| Recorded Test | | 0657 | 0653 | |
| O2 | | 13.3% | 15.8 % | |
| CO | | 2 PPM | 7 PPM | |
| Eff | | 79.8% | 24.8 % | |
| CO2 | | 4.3 % | 2.9 % | |
| T-Stk | | 293 °F | 961 °F | |
| T-Air | | 83 °F | 78.6 °F | |
| EA | | 157 % | 250 % | |
| CO (15) | | 2 PPM | 8 PPM | |
| NO | | 19 PPM | 18.3 PPM | |
| NO2 | | 3.2 PPM | 0 PPM | |
| NOX | | 27.2 PPM | 18.3 PPM | |
| SO2 | | *** | *** | |
| NO (15) | | 15 PPM | 21 PPM | |
| NOX (15) | | 17 PPM | 21 PPM | |
| SO2 (15 | | *** | *** | |
| Mega Watts | | 8.4 | 8 | |
| KSCF/hour | | 45 | | |

**Signature:** Kenneth Wells

| Date: 5/30/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0709 | | | |
| Recorded Test | 0724 | | | |
| O2 | 5.1 % | | | |
| CO | 0 PPM | | | |
| Eff | 84.5 % | | | |
| CO2 | 8.9 % | | | |
| T-Stk | 320 °F | | | |
| T-Air | 93.9 °F | | | |
| EA | 28.5 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 45.8 PPM | | | |
| NO2 | 1.3 PPM | | | |
| NOX | 47.1 PPM | | | |
| SO2 | *** | | | |
| NO (15) | 17 PPM | | | |
| NOX (15) | 18 PPM | | | |
| SO2 (15 | *** | | | |
| K lbs/hour | 30 | | | |

**Signature:** Kenneth Wells

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:53:00 AM
Date: 05/30/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 7 ppm |
| Eff | 24.8 % |
| $CO_2$ | 2.9 % |
| T-Stk | 961 °F |
| T-Air | 78.6 °F |
| EA | 250.0 % |
| CO(15) | 8 ppm |
| NO | 18.3 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 18.3 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

MW - 8

GT2 UP

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:57:11 AM
Date: 05/30/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 2 ppm |
| Eff | 79.8 % |
| $CO_2$ | 4.3 % |
| T-Stk | 293 °F |
| T-Air | 83.0 °F |
| EA | 157.0 % |
| CO(15) | 2 ppm |
| NO | 19.0 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 22.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

MW - 8.4
KSCF/hr - 45

?ıvô
R+uıı$^{\Omega z}$ ı

BLR2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:24:47 AM
Date: 05/30/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.1 % |
| CO | 0 ppm |
| Eff | 84.5 % |
| $CO_2$ | 8.9 % |
| T-Stk | 320 °F |
| T-Air | 93.9 °F |
| EA | 28.5 % |
| CO(15) | 0 ppm |
| NO | 45.8 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 47.1 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments:

KLbs/hr - 30

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 6/1/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1705 | | |
| Recorded Test | | 1710 | | |
| O2 | | 14.7% | | |
| CO | | 1 PPM | | |
| Eff | | 77.2% | | |
| CO2 | | 3.5% | | |
| T-Stk | | 298°F | | |
| T-Air | | 81.0°F | | |
| EA | | 213.2% | | |
| CO (15) | | 3 PPM | | |
| NO | | 16.4 PPM | | |
| NO2 | | 2.9 PPM | | |
| NOX | | 19.3 PPM | | |
| SO2 | | — | | |
| NO (15) | | 16 PPM | | |
| NOX (15) | | 18 PPM | | |
| SO2 (15 | | — | | |
| Mega Watts | | 7.5 MW | | |
| KSCF/hour | | 28 | | |

**Signature:** Darrell J. Sheets

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** Darrell J. Sheets

Darrell J. Sheets

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 17:10:46
Date: 06/01/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 14.7 % |
| CO | 1 ppm |
| Eff | 77.2 % |
| $CO_2$ | 3.5 % |
| T-Stk | 298 °F |
| T-Air | 81.0 °F |
| EA | 213.2 % |
| CO(0) | 3 ppm |
| NO | 16.4 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 19.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments: HRS - 10 kpph
MW - 7.5
KSCH - 28

AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

THIS SHEET

CP 56431

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 6/6/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0841 | | | 0850 |
| Recorded Test | 0847 | | | 0856 |
| O2 | 14.4% | | | 15.8% |
| CO | 3ppm | | | 0ppm |
| Eff | 76.7% | | | 73.2% |
| CO2 | 3.7% | | | 2.9% |
| T-Stk | 318°F | | | 322°F |
| T-Air | 82.9°F | | | 86.7°F |
| EA | 196.7% | | | 250% |
| CO (15) | 3ppm | | | 0ppm |
| NO | 21.1ppm | | | 11.7 ppm |
| NO2 | 2.8ppm | | | 2.7 ppm |
| NOX | 23.9ppm | | | 14.3 ppm |
| SO2 | [illegible] | | | [illegible] |
| NO (15) | 19 ppm | | | 14 ppm |
| NOX (15) | 22 ppm | | | 17ppm |
| SO2 (15 | [illegible] | | | [illegible] |
| Mega Watts | 9.2 MW | [illegible] | | 8.3MW |
| KSCF/hour | 25 | | | |

**Signature:** [signature]

BACHARACH GT1DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:47:25 AM
Date: 06/06/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.4 % |
| CO | 3 ppm |
| Eff | 76.7 % |
| $CO_2$ | 3.7 % |
| T-Stk | 318 °F |
| T-Air | 82.9 °F |
| EA | 196.7 % |
| CO(15) | 3 ppm |
| NO | 21.1 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 23.9 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH GT2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:56:03 AM
Date: 06/06/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.8 % |
| CO | 0 ppm |
| Eff | 73.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 322 °F |
| T-Air | 86.7 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 11.7 ppm |
| $NO_2$ | 2.7 ppm |
| NOx | 14.3 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

GP 500 11

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 6/13/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0754 | | 0758 | |
| Recorded Test | 0757 | | 0801 | |
| O2 | 14.1 % | | 16.0% | |
| CO | 2 PPM | | 0 PPM | |
| Eff | 80.1 % | | 75.3 % | |
| CO2 | 3.8 % | | 2.8 % | |
| T-Stk | 269 °F | | 287 °F | |
| T-Air | 84 °F | | 86 ~~250~~ ~~5~~°F | |
| EA | 185.1 % | | 250 % | |
| CO (15) | 1 PPM | | 0 PPM | |
| NO | 17.1 PPM | | 9.4 PPM | |
| NO2 | 2.7 PPM | | 2.4 PPM | |
| NOX | 19.8 PPM | | 11.8 PPM | |
| SO2 | XXX PPM | | *** PPM | |
| NO (15) | 15 PPM | | 11 PPM | |
| NOX (15) | 17 PPM | | 14 PPM | |
| SO2 (15 | *** PPM | | *** PPM | |
| Mega Watts | 8.4 | | 7.9 | |
| KSCF/hour | 26 | | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** N/A

Boiler: RECORD TIME PROBE IS INSERTED (Start),

GT: RECORD TIME PROBE IS INSERTED (Start), W

WHEN FINISHED TESTING

GT1 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:57:39 AM
Date: 06/13/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.1 % |
| CO | 2 ppm |
| Eff | 80.1 % |
| $CO_2$ | 3.8 % |
| T-Stk | 269 °F |
| T-Air | 84.0 °F |
| EA | 185.1 % |
| CO(15) | 1 ppm |
| NO | 17.1 ppm |
| $NO_2$ | 2.7 ppm |
| NOx | 19.8 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:
MW- 8.4
KSCF/hr- ~~79~~ 26

GT2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:01:56 AM
Date: 06/13/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 75.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 287 °F |
| T-Air | 86.2 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 9.4 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 11.8 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.76 LPM |

Comments:
MW- 7.9

EMISSION TE

| Date: 20JUN2022 | GT 1 DB | | GT2 |
|---|---|---|---|
| Start Test | 1013 | | 1023 |
| Recorded Test | 1018 | | 1028 |
| O2 | 15.3 % | | 15.9 % |
| CO | 7 ppm | | 0 ppm |
| Eff | 74.5 % | | 73.3 % |
| CO2 | 3.1 % | | 2.8 % |
| T-Stk | 317 °F | | 313 °F |
| T-Air | 81 °F | | 85.3 °F |
| EA | 245.3 % | | 250.0 % |
| CO (15) | 7 ppm | | 0 ppm |
| NO | 17.6 ppm | | 14.4 ppm |
| NO2 | 4.9 ppm | | 2.9 ppm |
| NOX | 22.5 ppm | | 17.3 ppm |
| SO2 | *** | | *** |
| NO (15) | 19 ppm | | 17 ppm |
| NOX (15) | 24 ppm | | 21 ppm |
| SO2 (15 | *** | | *** |
| Mega Watts | 8.8 | | 8.3 |
| KSCF/hour | 6 | | |

#1 GT w/ D.B.

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:18:12 AM
Date: 06/20/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.3 % |
| CO | 7 ppm |
| Eff | 74.5 % |
| $CO_2$ | 3.1 % |
| T-Stk | 317 °F |
| T-Air | 81.0 °F |
| EA | 245.3 % |
| CO(15) | 7 ppm |
| NO | 17.6 ppm |
| $NO_2$ | 4.9 ppm |
| NOx | 22.5 ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 5 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.77 LPM |

Comments:

8.8 MW
6 Kscfh

#2 GT NO D.B.

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:28:06 AM
Date: 06/20/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.3 % |
| $CO_2$ | 2.8 % |
| T-Stk | 313 °F |
| T-Air | 85.3 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14.4 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 17.3 ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:

8.3 MW

**Signature:** Evelyn

| Date: | BLR 2 | | BLR 4 |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

**Signature:**

AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

THIS SHEET

CP 56996

## EMISSION TEST COLLEG

| Date: 6/27/22 | GT 1 DB | GT 2 |
|---|---|---|
| Start Test | 0745 | 0753 |
| Recorded Test | 0752 | 0800 |
| O2 | 13.8% | 15.9% |
| CO | 2 ppm | 0 ppm |
| Eff | 79.5 % | 73.6 % |
| CO2 | 4.0 % | 2.8 % |
| T-Stk | 286 of | 311 of |
| T-Air | 82 of | 83 of |
| EA | 172.9% | 250 % |
| CO (15) | 2 ppm | 0 ppm |
| NO | 19.9 ppm | 11.3 ppm |
| NO2 | 2.9 ppm | 2.4 ppm |
| NOX | 22.8 ppm | 13.7 ppm |
| SO2 | XXX | XXX |
| NO (15) | 17 ppm | 13 |
| NOX (15) | 19 ppm | 16 |
| SO2 (15 | XXX | XXX |
| Mega Watts | 8.4 MW | 8.0 MW |
| KSCF/hour | 37 | |

**Signature:**

BACHARACH

BACHARACH, INC. GT1 DB
PCA 400
SN: 20123585

Time: 07:52:51 AM
Date: 06/27/22

Fuel
NGAS

| | |
|---|---|
| $O_{2:}$ | 13.8 % |
| CO | 2 ppm |
| Eff | 79.5 % |
| $CO_2$ | 4.0 % |
| T-Stk | 286 °F |
| T-Air | 82.0 °F |
| EA | 172.9 % |
| CO(15) | 2 ppm |
| NO | 19.9 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 22.8 ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.78 LPM |

Comments:

GT2 NO DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:00:37 AM
Date: 06/27/22

Fuel
NGAS

| | |
|---|---|
| $O_{2:}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.6 % |
| $CO_2$ | 2.8 % |
| T-Stk | 311 °F |
| T-Air | 83.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 11.3 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 13.7 ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.76 LPM |

Comments:

| Date: | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

NUTES AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

TO THIS SHEET

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

October 18, 2022

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of July 1, 2022 through September 30, 2022.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Mark Alexander, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility July 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 692.50 | 0.00 | 86897.53 | 0.00 | | 759,600,000 | 0 | 794,504 | 0 | 0.0436 | 0.0000 | 0.0436 | 5.2787 | 0.0000 | 5.2787 | 0.1309 | 0.0000 | 0.1309 | 0.2618 | 0.0000 | 0.2618 | 0.2138 | 0.0000 | 0.2138 | 0.2138 | 0.0000 | 0.2138 |
| Turbine 2 | 408.10 | 0.00 | 51345.69 | 0.00 | | 488,600,000 | 0 | 511,051 | 0 | 0.0516 | 0.0000 | 0.0516 | 3.3253 | 0.0000 | 3.3253 | 0.3609 | 0.0000 | 0.3609 | 0.1547 | 0.0000 | 0.1547 | 0.0928 | 0.0000 | 0.0928 | 0.0928 | 0.0000 | 0.0928 |
| Duct Burner 1 | 602.10 | | 18105.39 | | | 166,190,000 | | 173,826 | | 0.0490 | | 0.0490 | 0.1182 | | 0.1182 | 0.0909 | | 0.0909 | 0.0053 | | 0.0053 | 0.0178 | | 0.0178 | 0.0178 | | 0.0178 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 94,610,000 | | 98,957 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 406.30 | 0.70 | 21367.71 | 6.19 | | | | | | 0.0025 | 0.0000 | 0.0025 | 1.0904 | 0.0004 | 1.0908 | 0.0059 | 0.0001 | 0.0060 | 0.0063 | 0.0001 | 0.0064 | 0.0963 | 0.0002 | 0.0966 | 0.0963 | 0.0002 | 0.0966 |
| Boiler 4 | 144.30 | 2.00 | 24054.85 | 72.03 | | | | | | 0.0052 | 0.0000 | 0.0052 | 1.2374 | 0.0047 | 1.2421 | 0.0261 | 0.0011 | 0.0272 | 0.0071 | 0.0015 | 0.0087 | 0.0728 | 0.0025 | 0.0753 | 0.0728 | 0.0025 | 0.0753 |
| Emerg. Gen. | | 30.00 | | 164.96 | 31.0 | | | | | | 0.0074 | 0.0074 | | 0.2639 | 0.2639 | | 0.0701 | 0.0701 | | 0.0001 | 0.0001 | | 0.0047 | 0.0047 | | 0.0057 | 0.0057 |
| Mobile Boiler | 46.90 | 0.00 | 293.91 | 0.00 | | | | | | 0.0006 | 0.0000 | 0.0006 | 0.0053 | 0.0000 | 0.0053 | 0.0055 | 0.0000 | 0.0055 | 0.0001 | 0.0000 | 0.0001 | 0.0016 | 0.0000 | 0.0016 | 0.0016 | 0.0000 | 0.0016 |
| Emissions Total | | | | | | | | | | 0.1525 | 0.0075 | 0.1600 | 11.0552 | 0.2690 | 11.3242 | 0.6202 | 0.0713 | 0.6915 | 0.4353 | 0.0018 | 0.4371 | 0.4951 | 0.0075 | 0.5025 | 0.4951 | 0.0085 | 0.5035 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.77 | 109.03 | 6.88 | 4.26 | 5.28 | 5.28 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility August 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 690.80 | 0.00 | 86426.85 | 0.00 | | 753,090,000 | 0 | 787,694 | 0 | 0.0434 | 0.0000 | 0.0434 | 5.2501 | 0.0000 | 5.2501 | 0.1302 | 0.0000 | 0.1302 | 0.2603 | 0.0000 | 0.2603 | 0.2126 | 0.0000 | 0.2126 | 0.2126 | 0.0000 | 0.2126 |
| Turbine 2 | 742.50 | 0.00 | 91499.71 | 0.00 | | 565,740,000 | 0 | 591,736 | 0 | 0.0919 | 0.0000 | 0.0919 | 5.9257 | 0.0000 | 5.9257 | 0.6431 | 0.0000 | 0.6431 | 0.2756 | 0.0000 | 0.2756 | 0.1654 | 0.0000 | 0.1654 | 0.1654 | 0.0000 | 0.1654 |
| Duct Burner 1 | 626.70 | | 12342.21 | | | 158,500,000 | | 165,783 | | 0.0334 | | 0.0334 | 0.0806 | | 0.0806 | 0.0620 | | 0.0620 | 0.0036 | | 0.0036 | 0.0122 | | 0.0122 | 0.0122 | | 0.0122 |
| Duct Burner 2 | 68.60 | | 1265.60 | | | 95,820,000 | | 100,223 | | 0.0034 | | 0.0034 | 0.0083 | | 0.0083 | 0.0064 | | 0.0064 | 0.0004 | | 0.0004 | 0.0012 | | 0.0012 | 0.0012 | | 0.0012 |
| Boiler 2 | 89.70 | 0.00 | 3129.48 | 0.00 | | | | | | 0.0004 | 0.0000 | 0.0004 | 0.1597 | 0.0000 | 0.1597 | 0.0009 | 0.0000 | 0.0009 | 0.0009 | 0.0000 | 0.0009 | 0.0141 | 0.0000 | 0.0141 | 0.0141 | 0.0000 | 0.0141 |
| Boiler 4 | 85.60 | 0.00 | 3032.21 | 0.00 | | | | | | 0.0007 | 0.0000 | 0.0007 | 0.1560 | 0.0000 | 0.1560 | 0.0033 | 0.0000 | 0.0033 | 0.0009 | 0.0000 | 0.0009 | 0.0092 | 0.0000 | 0.0092 | 0.0092 | 0.0000 | 0.0092 |
| Emerg. Gen. | | 0.05 | | 0.004 | 31.1 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 24.70 | 1.00 | 116.10 | 202.71 | | | | | | 0.0002 | 0.0001 | 0.0003 | 0.0021 | 0.0028 | 0.0049 | 0.0022 | 0.0005 | 0.0027 | 0.0000 | 0.0000 | 0.0001 | 0.0006 | 0.0014 | 0.0020 | 0.0006 | 0.0014 | 0.0020 |
| Emissions Total | | | | | | | | | | 0.1734 | 0.0001 | 0.1734 | 11.5824 | 0.0028 | 11.5852 | 0.8479 | 0.0005 | 0.8485 | 0.5418 | 0.0000 | 0.5418 | 0.4153 | 0.0014 | 0.4166 | 0.4153 | 0.0014 | 0.4166 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.83 | 113.00 | 7.40 | 4.47 | 5.33 | 5.33 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility September 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 264.00 | 0.00 | 29401.65 | 0.00 | | 694,990,000 | 0 | 726,925 | 0 | 0.0148 | 0.0000 | 0.0148 | 1.7860 | 0.0000 | 1.7860 | 0.0443 | 0.0000 | 0.0443 | 0.0886 | 0.0000 | 0.0886 | 0.0723 | 0.0000 | 0.0723 | 0.0723 | 0.0000 | 0.0723 |
| Turbine 2 | 264.00 | 0.00 | 33104.32 | 0.00 | | 597,390,000 | 0 | 624,840 | 0 | 0.0332 | 0.0000 | 0.0332 | 2.1439 | 0.0000 | 2.1439 | 0.2327 | 0.0000 | 0.2327 | 0.0997 | 0.0000 | 0.0997 | 0.0598 | 0.0000 | 0.0598 | 0.0598 | 0.0000 | 0.0598 |
| Duct Burner 1 | 263.70 | | 4633.56 | | | 140,200,000 | | 146,642 | | 0.0125 | | 0.0125 | 0.0302 | | 0.0302 | 0.0233 | | 0.0233 | 0.0014 | | 0.0014 | 0.0046 | | 0.0046 | 0.0046 | | 0.0046 |
| Duct Burner 2 | 0.20 | | 10.46 | | | 95,830,000 | | 100,233 | | 0.0000 | | 0.0000 | 0.0001 | | 0.0001 | 0.0001 | | 0.0001 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 524.10 | 0.00 | 52251.48 | 0.00 | | | | | | 0.0062 | 0.0000 | 0.0062 | 2.6664 | 0.0000 | 2.6664 | 0.0145 | 0.0000 | 0.0145 | 0.0154 | 0.0000 | 0.0154 | 0.2355 | 0.0000 | 0.2355 | 0.2355 | 0.0000 | 0.2355 |
| Boiler 4 | 592.20 | 0.00 | 40245.02 | 0.00 | | | | | | 0.0086 | 0.0000 | 0.0086 | 2.0703 | 0.0000 | 2.0703 | 0.0437 | 0.0000 | 0.0437 | 0.0119 | 0.0000 | 0.0119 | 0.1217 | 0.0000 | 0.1217 | 0.1217 | 0.0000 | 0.1217 |
| Emerg. Gen. | | 31.90 | | 0.194 | 63.0 | | | | | | 0.0000 | 0.0000 | | 0.0003 | 0.0003 | | 0.0001 | 0.0001 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 26.90 | 0.00 | 226.97 | 0.00 | | | | | | 0.0005 | 0.0000 | 0.0005 | 0.0041 | 0.0000 | 0.0041 | 0.0043 | 0.0000 | 0.0043 | 0.0001 | 0.0000 | 0.0001 | 0.0012 | 0.0000 | 0.0012 | 0.0012 | 0.0000 | 0.0012 |
| Emissions Total | | | | | | | | | | 0.0759 | 0.0000 | 0.0759 | 8.7010 | 0.0003 | 8.7013 | 0.3627 | 0.0001 | 0.3628 | 0.2170 | 0.0000 | 0.2170 | 0.4952 | 0.0000 | 0.4952 | 0.4952 | 0.0000 | 0.4952 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.79 | 114.89 | 7.50 | 4.40 | 5.47 | 5.47 |
| | OK | OK | OK | OK | OK | OK |

CP57236
CP 57234

## EMISSION TEST COLLEGE

| Date: 07/04/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0736 | |
| Recorded Test | 0739 | |
| O2 | 13.8 % | |
| CO | 1 PPM | |
| Eff | 78.7 % | |
| CO2 | 4.0 % | |
| T-Stk | 302 °F | |
| T-Air | 82.5 °F | |
| EA | 172.7 % | |
| CO (15) | 1 PPM | |
| NO | 23.0 PPM | |
| NO2 | 2.9 PPM | |
| NOX | 25.9 PPM | |
| SO2 | *** | |
| NO (15) | 19 PPM | |
| NOX (15) | 22 PPM | |
| SO2 (15 | *** | |
| Mega Watts | 8.9 | |
| KSCF/hour | 34 | |

**Signature:** Ken Wall

GT1 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:39:24 AM
Date: 07/04/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.8 % |
| CO | 1 ppm |
| Eff | 78.7 % |
| $CO_2$ | 4.0 % |
| T-Stk | 302 °F |
| T-Air | 82.5 °F |
| EA | 172.7 % |
| CO(15) | 1 ppm |
| NO | 23.0 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 25.9 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:
MW - 8.9
KSCF - 34

BLR 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:53:17 AM
Date: 07/04/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 4.8 % |
| CO | 0 ppm |
| Eff | 84.2 % |
| $CO_2$ | 9.1 % |
| T-Stk | 328 °F |
| T-Air | 89.2 °F |
| EA | 26.4 % |
| CO(15) | 0 ppm |
| NO | 53 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 54 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.76 LPM |

Comments:
K lbs - 34

| Date: 07/04/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 0738 | |
| Recorded Test | 0753 | |
| O2 | 4.8 % | |
| CO | 0 PPM | |
| Eff | 84.2 % | |
| CO2 | 9.1 % | |
| T-Stk | 328 °F | |
| T-Air | 89.2 °F | |
| EA | 26.4 % | |
| CO (15) | 0 PPM | |
| NO | 53 PPM | |
| NO2 | 1.4 PPM | |
| NOX | 54 PPM | |
| SO2 | *** | |
| NO (15) | 19 PPM | |
| NOX (15) | 20 PPM | |
| SO2 (15 | *** | |
| K lbs/hour | 34 | |

**Signature:** Ken Wall

ITES AND THEN PRINT TEST RESULTS

ITES AND THEN PRINT TEST RESULTS

A TO THIS SHEET

## EMISSION TEST COLLEGI

| Date: 7/11/22 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 9:13 am | |
| Recorded Test | 9:18 am | |
| O2 | 13.3% | |
| CO | 3 ppm | |
| Eff | 79.6% | |
| CO2 | 4.3% | |
| T-Stk | 300 °F | |
| T-Air | 83.7°F | |
| EA | 154.2% | |
| CO (15) | 2 ppm | |
| NO | 24 ppm | |
| NO2 | 2.8 ppm | |
| NOX | 26.8 ppm | |
| SO2 | | |
| NO (15) | 19 ppm | |
| NOX (15) | 21 ppm | |
| SO2 (15 | | |
| Mega Watts | 8.65 | |
| KSCF/hour | 45 | |

**Signature:** William Montes

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 9:20 am | |
| Recorded Test | 9:35 am | |
| O2 | 5% | |
| CO | 0 ppm | |
| Eff | 84.5% | |
| CO2 | 9% | |
| T-Stk | 322°F | |
| T-Air | 93.9°F | |
| EA | 27.7% | |
| CO (15) | 0 ppm | |
| NO | 47.8 ppm | |
| NO2 | 1.0 ppm | |
| NOX | 48.8 ppm | |
| SO2 | | |
| NO (15) | 18 ppm | |
| NOX (15) | 18 ppm | |
| SO2 (15 | | |
| K lbs/hour | 33 Kpph | |

**Signature:** William Montes

#2 BOILER

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:33:44 AM
Date: 07/11/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.0 % |
| CO | 0 ppm |
| Eff | 84.5 % |
| $CO_2$ | 9.0 % |
| T-Stk | 322 °F |
| T-Air | 93.9 °F |
| EA | 27.7 % |
| CO(15) | 0 ppm |
| NO | 47.8 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 48.8 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments: 33 Kpph
695 ACFM

GT #1

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:13:46 AM
Date: 07/11/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.3 % |
| CO | 3 ppm |
| Eff | 79.6 % |
| $CO_2$ | 4.3 % |
| T-Stk | 300 °F |
| T-Air | 83.7 °F |
| EA | 154.2 % |
| CO(15) | 2 ppm |
| NO | 24.0 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 26.8 ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments: 8.65 MW
45 scfm

PRINT TEST RESULTS

PRINT TEST RESULTS

CP 57647

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 07/18/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0638 | 0639 |
| Recorded Test | | | 0641 | 0642 |
| O2 | | | 15.6 % | 15.6 % |
| CO | | | 2 PPM | 0 PPM |
| Eff | | | 27.2 % | 26.9 % |
| CO2 | | | 3 % | 3 % |
| T-Stk | | | 972 °F | 965 °F |
| T-Air | | | 88.5 °F | 90.1 °F |
| EA | | | 250 % | 250 % |
| CO (15) | | | 3 PPM | 0 PPM |
| NO | | | 18.9 PPM | 10.9 PPM |
| NO2 | | | 0 PPM | 1.7 PPM |
| NOX | | | 18.9 PPM | 12.6 PPM |
| SO2 | | | — | — |
| NO (15) | | | 21 PPM | 12 PPM |
| NOX (15) | | | 18.9 PPM | 14 PPM |
| SO2 (15 | | | — | — |
| Mega Watts | | | 8.6 | 8.3 |
| KSCF/hour | | | | |

**Signature:** Kenneth Hall

| Date: 07/18/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0620 | 0617 | | |
| Recorded Test | 0635 | 0632 | | |
| O2 | 3.5 % | 6.1 % | | |
| CO | 5 PPM | 0 PPM | | |
| Eff | 82.1[redacted] % | 79.2 % | | |
| CO2 | 9.8 % | 8.4 % | | |
| T-Stk | 420 °F | 473 °F | | |
| T-Air | 84.5 °F | 80.2 °F | | |
| EA | 18 % | 36.3 % | | |
| CO (15) | 2 PPM | 0 PPM | | |
| NO | 41.7 PPM | 72 PPM | | |
| NO2 | 2.5 PPM | 0 PPM | | |
| NOX | 44.2 PPM | 72 PPM | | |
| SO2 | — | — | | |
| NO (15) | 14 PPM | 28 PPM | | |
| NOX (15) | 15 PPM | 28 PPM | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 78 | 41 | | |

**Signature:** Kenneth Hall

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:41:23 AM
Date: 07/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 2 ppm |
| Eff | 27.2 % |
| $CO_2$ | 3.0 % |
| T-Stk | 972 °F |
| T-Air | 88.5 °F |
| EA | 250.0 % |
| CO(15) | 3 ppm |
| NO | 18.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 18.9 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

Comments:

MW - 8.6

GT2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:42:51 AM
Date: 07/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.6 % |
| CO | 0 ppm |
| Eff | 26.9 % |
| $CO_2$ | 3.0 % |
| T-Stk | 965 °F |
| T-Air | 90.1 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 10.9 ppm |
| $NO_2$ | 1.7 ppm |
| NOx | 12.6 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.75 LPM |

Comments:

MW - 8.3

BUR2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:35:50 AM
Date: 07/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.5 % |
| CO | 5 ppm |
| Eff | 82.1 % |
| $CO_2$ | 9.8 % |
| T-Stk | 420 °F |
| T-Air | 84.5 °F |
| EA | 18.0 % |
| CO(15) | 2 ppm |
| NO | 41.7 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 44.2 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.75 LPM |

Comments:

Klbs/hr - 78

BUR4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:32:48 AM
Date: 07/18/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.1 % |
| CO | 0 ppm |
| Eff | 79.2 % |
| $CO_2$ | 8.4 % |
| T-Stk | 473 °F |
| T-Air | 80.2 °F |
| EA | 36.3 % |
| CO(15) | 0 ppm |
| NO | 72 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 72 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.76 LPM |

Comments:

Klbs/hr - 41

## EMISSION T... GY

MW: 7.75

WITH D.B

GT#1

| Date: 7/25/22 | GT 1 DB | GT2 |
|---|---|---|
| Start Test | 12:15 | 12:30 |
| Recorded Test | 12:21 | 12:38 |
| O2 | 14.5 % | 16.1 % |
| CO | 2 ppm | 0 ppm |
| Eff | 78 % | — |
| CO2 | 3.6 | — |
| T-Stk | 301 | 304° |
| T-Air | 90.2 | 95.4° |
| EA | 201.9 % | — |
| CO (15) | 2 ppm | — |
| NO | 13.7 | 7.8 ppm |
| NO2 | 3.6 | 2.4 ppm |
| NOX | 17.3 | 10.1 ppm |
| SO2 | XXXX | XXXX |
| NO (15) | 13 ppm | XXXX |
| NOX (15) | 16 ppm | XX 12.41 |
| SO2 (15 | XXXX | XXXX |
| Mega Watts | 7.75 | 7.1 |
| KSCF/hour | | |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:21:35 PM
Date: 07/25/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.5 % |
| CO | 2 ppm |
| Eff | 78.0 % |
| $CO_2$ | 3.6 % |
| T-Stk | 301 °F |
| T-Air | 90.2 °F |
| EA | 201.9 % |
| CO(15) | 2 ppm |
| NO | 13.7 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 17.3 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.75 LPM |

Comments: W/DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:38:24 PM
Date: 07/25/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.1 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 304 °F |
| T-Air | 95.4 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 7.8 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 10.1 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.76 LPM |

Comments: Nox(15) 12.41

WITH OUT D.B

GT#2 MW: 7.1

**Signature:** M. Jack

| Date: | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:**

THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 8:29am ~~15.8 %~~ | | | 9:21am ~~14.4%~~ |
| Recorded Test | 8:33 am | | | 9:26am ~~3 ppm~~ |
| O2 | 15.8% | | | 14.4% |
| CO | 0ppm | | | 3ppm |
| Eff | 73.1% | | | 77.4% |
| CO2 | 2.9% | | | 3.7% |
| T-Stk | 320°F | | | 304°F |
| T-Air | 84.6°F | | | 81.5°F |
| EA | 250% | | | 198% |
| CO (15) | 0 ppm | | | 2 ppm |
| NO | 10.6 ppm | | | 17.2ppm |
| NO2 | 2.8 ppm | | | 4.0ppm |
| NOX | 13.4 ppm | | | 21.2ppm |
| SO2 | | | | |
| NO (15) | 12 ppm | | | 16 ppm |
| NOX (15) | 16 ppm | | | 19 ppm |
| SO2 (15 | | | | |
| Mega Watts | 8.6 | | | 8.6 |
| KSCF/hour | 26 | | | |

**Signature:** William Mortar

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

SN: 20123585

Time: 08:33:13 AM
Date: 08/01/22

Fuel
NGAS

GT #1 DB

| | |
|---|---|
| $O_2$: | 15.8 % |
| CO | 0 ppm |
| Eff | 73.1 % |
| $CO_2$ | 2.9 % |
| T-Stk | 320 °F |
| T-Air | 84.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 10.6 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 13.4 ppm |
| NO(15) | 12 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.76 LPM |

8/6 64

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:26:44 AM
Date: 08/01/22

GT #2 Fuel NGAS

| | |
|---|---|
| $O_2$: | 14.4 % |
| CO | 3 ppm |
| Eff | 77.4 % |
| $CO_2$ | 3.7 % |
| T-Stk | 304 °F |
| T-Air | 81.5 °F |
| EA | 198.4 % |
| CO(15) | 2 ppm |
| NO | 17.2 ppm |
| $NO_2$ | 4.0 ppm |
| NOx | 21.2 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.76 LPM |

8/6 54

CP57980

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 8/8/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0901 | | | 0906 |
| Recorded Test | 0904 | | | 0909 |
| O2 | 14.3 % | | | 16.0 % |
| CO | 3 PPM | | | 0 PPM |
| Eff | 78.9 % | | | 74.7 % |
| CO2 | 3.7 % | | | 2.8 % |
| T-Stk | 289 °F | | | 299 °F |
| T-Air | 88.2 °F | | | 89.9 °F |
| EA | 193.6 % | | | 250 % |
| CO (15) | 3 PPM | | | 0 PPM |
| NO | 15.1 PPM | | | 9.1 PPM |
| NO2 | 2.8 PPM | | | 2.5 PPM |
| NOX | 17.8 PPM | | | 11.6 PPM |
| SO2 | *** | | | *** |
| NO (15) | 14 PPM | | | 11 PPM |
| NOX (15) | 16 PPM | | | 14 PPM |
| SO2 (15 | *** | | | *** |
| Mega Watts | 7.2 | | | 7.5 |
| KSCF/hour | 32 | | | |

**Signature:** Kenneth Wilson

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:09:54 AM
Date: 08/08/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 74.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 299 °F |
| T-Air | 89.9 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 9.1 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 11.6 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.76 LPM |

Comments:

MW - 7.5

GT 1 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:04:18 AM
Date: 08/08/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 3 ppm |
| Eff | 78.9 % |
| $CO_2$ | 3.7 % |
| T-Stk | 289 °F |
| T-Air | 88.2 °F |
| EA | 193.6 % |
| CO(15) | 3 ppm |
| NO | 15.1 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 17.8 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.76 LPM |

Comments:

MW - 7.2
1KSCF/hr - 32

CP 58143

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 8/15/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1027 | | | 1031 |
| Recorded Test | 1030 | | | 1034 |
| O2 | 14.3 % | | | 15.9 % |
| CO | 1 PPM | | | 0 PPM |
| Eff | 77.7 % | | | 73.1 % |
| CO2 | 3.7 % | | | 2.8 % |
| T-Stk | 300 °F | | | 314 °F |
| T-Air | 78.1 °F | | | 80.5 °F |
| EA | 192.1 % | | | 250 % |
| CO (15) | 1 PPM | | | 0 PPM |
| NO | 17.6 PPM | | | 11.6 PPM |
| NO2 | 2.6 PPM | | | 2.6 PPM |
| NOX | 20.2 PPM | | | 14.3 PPM |
| SO2 | *** PPM | | | *** |
| NO (15) | 16 PPM | | | 14 PPM |
| NOX (15) | 18 PPM | | | 17 PPM |
| SO2 (15 | *** | | | *** |
| Mega Watts | 7.5 | | | 8.1 |
| KSCF/hour | 32 | | | |

**Signature:** Kenneth Blue

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:34:08 AM
Date: 08/15/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.1 % |
| $CO_2$ | 2.8 % |
| T-Stk | 314 °F |
| T-Air | 80.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 11.6 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 14.3 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.76 LPM |

Comments:

KSCF -
MW - 8.1

GT1 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:30:07 AM
Date: 08/15/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 1 ppm |
| Eff | 77.7 % |
| $CO_2$ | 3.7 % |
| T-Stk | 300 °F |
| T-Air | 78.1 °F |
| EA | 192.1 % |
| CO(15) | 1 ppm |
| NO | 17.6 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 20.2 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments:

MW - 7.5
KSCF - 32

#1 w/DB

#2 NO/DB

## EMISSION T ... GY

| Date: 8/20/22 | GT 1 DB | GT2 |
|---|---|---|
| Start Test 09:35 | | |
| Recorded Test 0945 | | |
| O2 | 14.9% | 15.9% |
| CO | 4 ppm | 0 |
| Eff | 76.2% | 73.2 |
| CO2 | 3.4% | 2.8 |
| T-Stk | 312 F | 319 |
| T-Air | 84.8 | 89.5 |
| EA | 220.8 | 250 |
| CO (15) | 4 ppm | 0 |
| NO | 15.9 | 10.3 |
| NO2 | 2.3 | 1.9 |
| NOX | 18.2 | 12.2 |
| SO2 | | |
| NO (15) | 16 | 12 |
| NOX (15) | 18 | 15 |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:45:22 AM
Date: 08/20/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 14.9 % |
| CO | 4 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.4 % |
| T-Stk | 312 °F |
| T-Air | 84.8 °F |
| EA | 220.8 % |
| CO(15) | 4 ppm |
| NO | 15.9 ppm |
| $NO_2$ | 2.3 ppm |
| NOx | 18.2 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:52:57 AM
Date: 08/20/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 73.2 % |
| $CO_2$ | 2.8 % |
| T-Stk | 319 °F |
| T-Air | 89.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 10.3 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 12.2 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.77 LPM |

Comments:

**Signature:** _____

| Date: | BLR | 2 | BLR 4 |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

**Signature:** _____

...ED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**UTES** AND THEN PRINT TEST RESULTS

...M TO THIS SHEET

## EMISSION TE ... Y

| Date: 8/22/22 | GT 1 DB | | | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | 0700 | | | 0707 |
| O2 | 14.3% | | | 15.8% |
| CO | 4 ppm | | | 0 |
| Eff | 77.6% | | | 74.2 |
| CO2 | 3.7% | | | 2.9 |
| T-Stk | 305° | | | 309 |
| T-Air | 82.2F | | | 86.6 |
| EA | 194.6% | | | 250% |
| CO (15) | 3ppm | | | 0 |
| NO | 16.4 ppm | | | 10.5 |
| NO2 | 2.5 ppm | | | 2.2 |
| NOX | 18.9 ppm | | | 12.7 |
| SO2 | | | | XXX |
| NO (15) | 15ppm | | | 12 ppm |
| NOX (15) | 17ppm | | | 15 ppm |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:00:55 AM
Date: 08/22/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 4 ppm |
| Eff | 77.6 % |
| $CO_2$ | 3.7 % |
| T-Stk | 305 °F |
| T-Air | 82.2 °F |
| EA | 194.6 % |
| CO(15) | 3 ppm |
| NO | 16.4 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 18.9 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.76 LPM |

Comments:
HRSG #1 w/DB
GT

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:07:33 AM
Date: 08/22/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 74.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 309 °F |
| T-Air | 86.6 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 10.5 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 12.7 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.76 LPM |

Comments:
GT2 NO/DB

**Signature:** _____

| Date: | BLR 2 | | | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** N. Jackson

NUTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

CP 584499

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1341 | | | 1351 |
| Recorded Test | 1347 | | | 1357 |
| O2 | 14.5% | | | 14.0% |
| CO | 2 ppm | | | 0 ppm |
| Eff | 76.8% | | | 73.6% |
| CO2 | 3.6% | | | 2.8% |
| T-Stk | 319°F | | | 323°F |
| T-Air | 89°F | | | 98.0°F |
| EA | 202.9% | | | 250 % |
| CO (15) | 1 ppm | | | 0 ppm |
| NO | 14.3 ppm | | | 3.7 ppm |
| NO2 | 2.2 ppm | | | 1.9 ppm |
| NOX | 16.4 ppm | | | 5.6 ppm |
| SO2 | XX | | | XX |
| NO (15) | 13 ppm | | | 4 ppm |
| NOX (15) | 15 ppm | | | 7 ppm |
| SO2 (15 | XX | | | XX |
| Mega Watts | 7.2 | | | 3.0 |
| KSCF/hour | 31 | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

#1 GT DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

WITH DB

Time: 01:47:04 PM
Date: 08/29/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.5 % |
| CO | 2 ppm |
| Eff | 76.8 % |
| $CO_2$ | 3.6 % |
| T-Stk | 319 °F |
| T-Air | 89.0 °F |
| EA | 202.9 % |
| CO(15) | 1 ppm |
| NO | 14.3 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 16.4 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.81 LPM |

BACHARACH

#2 GT

BACHARACH, INC.
PCA 400
SN: 20123585

WITHOUT D.B

Time: 01:57:07 PM
Date: 08/29/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 16.0 % |
| CO | 0 ppm |
| Eff | 73.4 % |
| $CO_2$ | 2.8 % |
| T-Stk | 323 °F |
| T-Air | 98.0 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 3.7 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 5.6 ppm |
| NO(15) | 4 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 7 ppm |
| Flow | 0.76 LPM |

CP 58606

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 9/5/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0723 | | | 0727 |
| Recorded Test | 0726 | | | 0730 |
| O2 | 15 % | | | 15.9 % |
| CO | 4 PPM | | | 0 PPM |
| Eff | 75.6 % | | | 72.7 % |
| CO2 | 3.3 % | | | 2.8 % |
| T-Stk | 315 °F | | | 328 °F |
| T-Air | 84.3 °F | | | 85.2 °F |
| EA | 227.8 % | | | 250 % |
| CO (15) | 4 PPM | | | 0 PPM |
| NO | 15.2 PPM | | | 11.1 PPM |
| NO2 | 3.0 PPM | | | 2.5 PPM |
| NOX | 18.2 PPM | | | 13.7 PPM |
| SO2 | — | | | — |
| NO (15) | 15 PPM | | | 13 PPM |
| NOX (15) | 18 PPM | | | 16 PPM |
| SO2 (15 | — | | | — |
| Mega Watts | 7.4 | | | 8 |
| KSCF/hour | 17 | | | |

**Signature:** Kenneth Wil

| Date: 9/5/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0704 | | |
| Recorded Test | | 0719 | | |
| O2 | | 12.3 % | | |
| CO | | 0 PPM | | |
| Eff | | 76.1 % | | |
| CO2 | | 4.9 % | | |
| T-Stk | | 392 °F | | |
| T-Air | | 78 °F | | |
| EA | | 127.3 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 46.3 PPM | | |
| NO2 | | 1.1 PPM | | |
| NOX | | 47.4 PPM | | |
| SO2 | | | | |
| NO (15) | | 32 PPM | | |
| NOX (15) | | 33 PPM | | |
| SO2 (15 | | | | |
| K lbs/hour | | 12 | | |

**Signature:** Kenneth Wil

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP58606

GT1DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:26:21 AM
Date: 09/05/22

Fuel
NGAS

| | |
|---|---|
| $O_{2}$ | 15.0 % |
| CO | 4 ppm |
| Eff | 75.6 % |
| $CO_2$ | 3.3 % |
| T-Stk | 315 °F |
| T-Air | 84.3 °F |
| EA | 227.8 % |
| CO(15) | 4 ppm |
| NO | 15.2 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 18.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

Comments:
MW - 7.4
KSCF - 17

GT2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:30:20 AM
Date: 09/05/22

Fuel
NGAS

| | |
|---|---|
| $O_{2}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 72.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 323 °F |
| T-Air | 85.2 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 11.1 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 13.7 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.77 LPM |

Comments:
MW - 8

BLR4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:19:35 AM
Date: 09/05/22

Fuel
NGAS

| | |
|---|---|
| $O_{2}$ | 12.3 % |
| CO | 0 ppm |
| Eff | 76.1 % |
| $CO_2$ | 4.9 % |
| T-Stk | 392 °F |
| T-Air | 78.0 °F |
| EA | 127.3 % |
| CO(15) | 0 ppm |
| NO | 46.3 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 47.4 ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 33 ppm |
| Flow | 0.76 LPM |

Comments:
K - 12

## EMISSION T… …RGY

| Date: 9/8/22 | GT 1 DB | | | | GT2 |
|---|---|---|---|---|---|
| Start Test | 08:57 | | | | 09:06 |
| Recorded Test | | | | | |
| O2 | 15.2 % | | | | 15.8 % |
| CO | 5 ppm | | | | 0 |
| Eff | 75.5 % | | | | 74.1 % |
| CO2 | 3.2 % | | | | 2.9 % |
| T-Stk | 308° | | | | 308 F |
| T-Air | 80.5 ~~235~~ | | | | 84.9 F |
| EA | 235.8 | | | | 250 % |
| CO (15) | 5 ppm | | | | 0 |
| NO | 15.3 ppm | | | | 12.1 ppm |
| NO2 | 3.5 ppm | | | | 2.8 ppm |
| NOX | 18.9 ppm | | | | 14.9 ppm |
| SO2 | — | | | | XXXX |
| NO (15) | 16 ppm | | | | 14 ppm |
| NOX (15) | 19 ppm | | | | 17 ppm |
| SO2 (15 | — | | | | XXXX |
| Mega Watts | | | | | |
| KSCF/hour | | | | | |

**Signature:** M Jack

| Date: | BLR 2 | | | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:57:27 AM
Date: 09/08/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.2 % |
| CO | 5 ppm |
| Eff | 75.5 % |
| $CO_2$ | 3.2 % |
| T-Stk | 308 °F |
| T-Air | 80.5 °F |
| EA | 235.8 % |
| CO(15) | 5 ppm |
| NO | 15.3 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 18.9 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.76 LPM |

Comments:
#1 HRSG W/DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:06:13 AM
Date: 09/08/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 15.8 % |
| CO | 0 ppm |
| Eff | 74.1 % |
| $CO_2$ | 2.9 % |
| T-Stk | 308 °F |
| T-Air | 84.9 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 12.1 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 14.9 ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.76 LPM |

Comments:
#2 HRSG NO/DB

S AND THEN PRINT TEST RESULTS

, AND THEN PRINT TEST RESULTS

) THIS SHEET

CP59196

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: ~~20123585~~

Time: 12:11:12 PM
Date: 09/19/22

Fuel
NGAS

BLR 2

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 10 ppm |
| Eff | 82.0 % |
| $CO_2$ | 9.9 % |
| T-Stk | 419 °F |
| T-Air | 79.6 °F |
| EA | 17.4 % |
| CO(15) | 4 ppm |
| NO | 49.2 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 53 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.75 LPM |

Comments:

Klbs - 80

| Date: 9/19/2022 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1156 | 1209 | | |
| Recorded Test | 1211 | 1214 | | |
| O2 | 3.4 % | 6.4 % | | |
| CO | 10 ppm | 0 ppm | | |
| Eff | 82 % | 79.5 % | | |
| CO2 | 9.9 % | 8.2 % | | |
| T-Stk | 419 °F | 460 °F | | |
| T-Air | 79.6 °F | 83.8 °F | | |
| EA | 17.4 % | 38.9 % | | |
| CO (15) | 4 ppm | 0 ppm | | |
| NO | 49.2 ppm | 73 ppm | | |
| NO2 | 3.3 ppm | 0 ppm | | |
| NOX | 53 ppm | 73 ppm | | |
| SO2 | — | — | | |
| NO (15) | 17 ppm | 30 ppm | | |
| NOX (15) | 18 ppm | 30 ppm | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 80 | 35 | | |

**Signature:** Kenneth Wall

PCA 400
SN: 20123585

Time: 12:14:23 PM
Date: 09/19/22

Fuel
NGAS

BLR4

| | |
|---|---|
| $O_2$ | 6.4 % |
| CO | 0 ppm |
| Eff | 79.5 % |
| $CO_2$ | 8.2 % |
| T-Stk | 460 °F |
| T-Air | 83.8 °F |
| EA | 38.9 % |
| CO(15) | 0 ppm |
| NO | 73 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 73 ppm |
| NO(15) | 30 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.75 LPM |

Comments:

Klbs - 35

## EMISSION TEST COLLEGI

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BACHARACH BLR4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:28:12 PM
Date: 09/26/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.6 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.1 % |
| T-Stk | 457 °F |
| T-Air | 95.0 °F |
| EA | 41.2 % |
| CO(15) | 0 ppm |
| NO | 70 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 70 ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.75 LPM |

Comments:

BACHARACH BLR2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:48:46 PM
Date: 09/26/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.7 % |
| CO | 10 ppm |
| Eff | 83.3 % |
| $CO_2$ | 9.7 % |
| T-Stk | 374 °F |
| T-Air | 87.2 °F |
| EA | 19.2 % |
| CO(15) | 3 ppm |
| NO | 49.4 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 53 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.75 LPM |

Comments:

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | ~~2232~~ | | 2232 | 2122 |
| Recorded Test | ~~2248~~ | | 2248 | 2123 |
| O2 | ~~3.7%~~ | | 3.7% | 6.6% |
| CO | ~~10 PPM~~ | | 10ppm | 0ppm |
| Eff | ~~83.3%~~ | | 83.3% | 79.8% |
| CO2 | ~~9.7%~~ | | 9.7% | 8.1% |
| T-Stk | ~~374°F~~ | | 374°F | 457°F |
| T-Air | ~~87.2°F~~ | | 87.2°F | 95.0°F |
| EA | | | 19.2% | 41.2% |
| CO (15) | | | 3ppm | 0ppm |
| NO | | | 49.4ppm | 70ppm |
| NO2 | | | 3.8ppm | 0ppm |
| NOX | | | 53ppm | 70ppm |
| SO2 | | | XX | XX |
| NO (15) | | | 17ppm | 29ppm |
| NOX (15) | | | 18ppm | 29ppm |
| SO2 (15 | | | XX | XX |
| K lbs/hour | | | 60Kpph | 35Kpph |

**Signature:**

INUTES AND THEN PRINT TEST RESULTS

INUTES AND THEN PRINT TEST RESULTS

RM TO THIS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), W

**GT:** RECORD TIME PROBE IS INSERTED (Start), WA

WHEN FINISHED TESTING A

| Date: 9/29/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | |
| Recorded Test | 07:48 | 07:55 |
| O2 | 3.5% | 6.7% |
| CO | 13 ppm | 0 ppm |
| Eff | 82.6% | 79.8% |
| CO2 | 9.8% | 8.0% |
| T-Stk | 397 | 441 |
| T-Air | 80.7 | 82.6 F |
| EA | 17.8 | 42.1 |
| CO (15) | 4 ppm | 0 ppm |
| NO | 55 ppm | 80 ppm |
| NO2 | 4.1 ppm | 1.1 ppm |
| NOX | 59 ppm | 81 ppm |
| SO2 | | |
| NO (15) | 18 ppm | 33 ppm |
| NOX (15) | 20 | 34 ppm |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** N. Jar SY/ST

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:48:1 AM
Date: 09/29/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.5 % |
| CO | 13 ppm |
| Eff | 82.6 % |
| $CO_2$ | 9.8 % |
| T-Stk | 397 °F |
| T-Air | 80.7 °F |
| EA | 17.8 % |
| CO(15) | 4 ppm |
| NO | 55 ppm |
| $NO_2$ | 4.1 ppm |
| NOx | 59 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.75 LPM |

Comments:

BLR #2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:55:33 AM
Date: 09/29/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.7 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.0 % |
| T-Stk | 441 °F |
| T-Air | 82.6 °F |
| EA | 42.1 % |
| CO(15) | 0 ppm |
| NO | 80 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 81 ppm |
| NO(15) | 33 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 34 ppm |
| Flow | 0.76 LPM |

Comments:

BLR #4

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

January 13, 2023

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of October 1, 2022, through December 31, 2022.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Mark Alexander, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility October 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 679,570,000 | 0 | 710,796 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 597,390,000 | 0 | 624,840 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 138,680,000 | | 145,052 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 95,830,000 | | 100,233 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 |
| Boiler 2 | 636.50 | 0.00 | 73768.76 | 0.00 | | | | | | 0.0088 | 0.0000 | 0.0088 | 3.7645 | 0.0000 | 3.7645 | 0.0205 | 0.0000 | 0.0205 | 0.0218 | 0.0000 | 0.0218 | 0.3325 | 0.0000 | 0.3325 | 0.3325 | 0.0000 | 0.3325 |
| Boiler 4 | 648.10 | 0.00 | 144089.03 | 0.00 | | | | | | 0.0309 | 0.0000 | 0.0309 | 7.4121 | 0.0000 | 7.4121 | 0.1565 | 0.0000 | 0.1565 | 0.0426 | 0.0000 | 0.0426 | 0.4359 | 0.0000 | 0.4359 | 0.4359 | 0.0000 | 0.4359 |
| Emerg. Gen. | | 0.00 | | 0.00 | 63.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 142.10 | 0.00 | 2167.21 | 0.00 | | | | | | 0.0044 | 0.0000 | 0.0044 | 0.0392 | 0.0000 | 0.0392 | 0.0408 | 0.0000 | 0.0408 | 0.0007 | 0.0000 | 0.0007 | 0.0115 | 0.0000 | 0.0115 | 0.0115 | 0.0000 | 0.0115 |
| Emissions Total | | | | | | | | | | 0.0440 | 0.0000 | 0.0440 | 11.2158 | 0.0000 | 11.2158 | 0.2177 | 0.0000 | 0.2177 | 0.0650 | 0.0000 | 0.0650 | 0.7799 | 0.0000 | 0.7799 | 0.7799 | 0.0000 | 0.7799 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.80 | 119.85 | 7.57 | 4.39 | 5.79 | 5.79 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility November 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 624,530,000 | 0 | 653,227 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 588,740,000 | 0 | 615,793 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 131,800,000 | | 137,856 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 95,530,000 | | 99,920 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 |
| Boiler 2 | 711.30 | 23.00 | 80269.34 | 238.10 | | | | | | 0.0096 | 0.0002 | 0.0097 | 4.0962 | 0.0145 | 4.1107 | 0.0223 | 0.0026 | 0.0249 | 0.0237 | 0.0053 | 0.0290 | 0.3618 | 0.0093 | 0.3711 | 0.3618 | 0.0093 | 0.3711 |
| Boiler 4 | 678.50 | 14.30 | 15230.08 | 740.13 | | | | | | 0.0033 | 0.0005 | 0.0038 | 0.7835 | 0.0484 | 0.8318 | 0.0165 | 0.0113 | 0.0278 | 0.0045 | 0.0159 | 0.0204 | 0.0461 | 0.0255 | 0.0716 | 0.0461 | 0.0255 | 0.0716 |
| Emerg. Gen. | | 0.50 | | 6.599 | 63.5 | | | | | | 0.0003 | 0.0003 | | 0.0106 | 0.0106 | | 0.0028 | 0.0028 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 266.80 | 14.10 | 3449.54 | 2784.00 | | | | | | 0.0069 | 0.0008 | 0.0077 | 0.0623 | 0.0383 | 0.1006 | 0.0649 | 0.0072 | 0.0721 | 0.0010 | 0.0003 | 0.0013 | 0.0183 | 0.0187 | 0.0370 | 0.0183 | 0.0187 | 0.0370 |
| Emissions Total | | | | | | | | | | 0.0198 | 0.0017 | 0.0215 | 4.9420 | 0.1117 | 5.0537 | 0.1037 | 0.0239 | 0.1276 | 0.0292 | 0.0215 | 0.0507 | 0.4263 | 0.0537 | 0.4800 | 0.4263 | 0.0537 | 0.4800 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.74 | 115.96 | 7.39 | 4.19 | 5.67 | 5.67 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility December 2022**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 196.10 | 0.00 | 26023.24 | 0.00 | | 625,330,000 | 0 | 654,064 | 0 | 0.0131 | 0.0000 | 0.0131 | 1.5808 | 0.0000 | 1.5808 | 0.0392 | 0.0000 | 0.0392 | 0.0784 | 0.0000 | 0.0784 | 0.0640 | 0.0000 | 0.0640 | 0.0640 | 0.0000 | 0.0640 |
| Turbine 2 | 507.80 | 0.00 | 64357.30 | 0.00 | | 565,900,000 | 0 | 591,903 | 0 | 0.0646 | 0.0000 | 0.0646 | 4.1679 | 0.0000 | 4.1679 | 0.4523 | 0.0000 | 0.4523 | 0.1939 | 0.0000 | 0.1939 | 0.1163 | 0.0000 | 0.1163 | 0.1163 | 0.0000 | 0.1163 |
| Duct Burner 1 | 23.90 | | 0.00 | | | 124,330,000 | | 130,043 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 307.50 | | 13231.27 | | | 89,950,000 | | 94,083 | | 0.0358 | | 0.0358 | 0.0864 | | 0.0864 | 0.0664 | | 0.0664 | 0.0039 | | 0.0039 | 0.0130 | | 0.0130 | 0.0130 | | 0.0130 |
| Boiler 2 | 727.40 | 4.20 | 47932.75 | 508.91 | | | | | | 0.0057 | 0.0004 | 0.0061 | 2.4460 | 0.0310 | 2.4771 | 0.0133 | 0.0056 | 0.0189 | 0.0142 | 0.0112 | 0.0254 | 0.2161 | 0.0199 | 0.2360 | 0.2161 | 0.0199 | 0.2360 |
| Boiler 4 | 732.30 | 5.50 | 289254.33 | 392.20 | | | | | | 0.0620 | 0.0003 | 0.0623 | 14.8796 | 0.0256 | 14.9053 | 0.3141 | 0.0060 | 0.3201 | 0.0854 | 0.0084 | 0.0939 | 0.8750 | 0.0135 | 0.8886 | 0.8750 | 0.0135 | 0.8886 |
| Emerg. Gen. | | 0.50 | | 6.599 | 64.0 | | | | | | 0.0003 | 0.0003 | | 0.0106 | 0.0106 | | 0.0028 | 0.0028 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 302.60 | 4.00 | 2976.77 | 789.00 | | | | | | 0.0060 | 0.0002 | 0.0062 | 0.0538 | 0.0108 | 0.0646 | 0.0560 | 0.0020 | 0.0581 | 0.0009 | 0.0001 | 0.0010 | 0.0158 | 0.0053 | 0.0211 | 0.0158 | 0.0053 | 0.0211 |
| Emissions Total | | | | | | | | | | 0.1872 | 0.0012 | 0.1884 | 23.2145 | 0.0781 | 23.2926 | 0.9414 | 0.0164 | 0.9578 | 0.3766 | 0.0198 | 0.3964 | 1.3003 | 0.0389 | 1.3392 | 1.3003 | 0.0389 | 1.3392 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.75 | 130.53 | 7.51 | 4.22 | 6.66 | 6.67 |
| | OK | OK | OK | OK | OK | OK |

BACHARACH

BACHARACH, INC. BLR 2
PCA 400
SN: 20123585

Time: 10:58:41 AM
Date: 10/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.3 % |
| CO | 12 ppm |
| Eff | 82.4 % |
| $CO_2$ | 9.9 % |
| T-Stk | 405 °F |
| T-Air | 81.5 °F |
| EA | 16.8 % |
| CO(15) | 4 ppm |
| NO | 51 ppm |
| $NO_2$ | 4.2 ppm |
| NOx | 55 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.75 LPM |

Comments:

BACHARACH

BACHARACH, INC. BLR 4
PCA 400
SN: 20123585

Time: 10:40:41 AM
Date: 10/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.0 % |
| CO | 0 ppm |
| Eff | 79.5 % |
| $CO_2$ | 8.4 % |
| T-Stk | 467 °F |
| T-Air | 84.0 °F |
| EA | 35.5 % |
| CO(15) | 0 ppm |
| NO | 77 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 79 ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 31 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH

BACHARACH, INC. Mobile
PCA 400
SN: 20123585

Time: 10:10:46 AM
Date: 10/03/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.1 % |
| CO | 0 ppm |
| Eff | 81.7 % |
| $CO_2$ | 8.3 % |
| T-Stk | 376 °F |
| T-Air | 70.4 °F |
| EA | 36.9 % |
| CO(15) | 0 ppm |
| NO | 27.2 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 27.2 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 11 ppm |
| Flow | 0.76 LPM |

Comments:

**Signature:**

| Date: 10/3/22 | BLR 2 | BLR 4 | ~~BLR 2~~ MOBILE | ~~BLR 4~~ MOBILE |
|---|---|---|---|---|
| Start Test | 1042 | 1022 | ~~1000~~ | 0953 |
| Recorded Test | 1058 | 1040 | | 1010 |
| O2 | 3.3% | 6.0% | | 6.1% |
| CO | 12ppm | 0ppm | | 0ppm |
| Eff | 82.4% | 79.5% | | 81.7% |
| CO2 | 9.9% | 8.4% | | 8.3% |
| T-Stk | 405°F | 467°F | | 376°F |
| T-Air | 81.5°F | 84.0°F | | 70.4°F |
| EA | 16.8% | 35.5% | | 36.9% |
| CO (15) | 4ppm | 0ppm | | 0ppm |
| NO | 51ppm | 77ppm | | 27.2ppm |
| NO2 | 4.2ppm | 1.6ppm | | 0 |
| NOX | 55ppm | 79ppm | | 27.2ppm |
| SO2 | XX | XX | | XX |
| NO (15) | 17ppm | 31ppm | | 11ppm |
| NOX (15) | 18ppm | 31ppm | | 11ppm |
| SO2 (15 | XX | XX | | XX |
| K lbs/hour | 69 KppH | 39 KppH | | |

**Signature:**

15 MINUTES AND THEN PRINT TEST RESULTS

-5 MINUTES AND THEN PRINT TEST RESULTS

H FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:46:43 PM
Date: 10/10/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 8 ppm |
| Eff | 82.8 % |
| $CO_2$ | 9.8 % |
| T-Stk | 383 °F |
| T-Air | 74.9 °F |
| EA | 18.0 % |
| CO(15) | 3 ppm |
| NO | 60 ppm |
| $NO_2$ | 3.9 ppm |
| NOx | 64 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.74 LPM |

Comments:
Klbs/hr - 63

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:53:58 PM
Date: 10/10/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.0 % |
| CO | 0 ppm |
| Eff | 80.2 % |
| $CO_2$ | 7.8 % |
| T-Stk | 422 °F |
| T-Air | 82.2 °F |
| EA | 45.2 % |
| CO(15) | 0 ppm |
| NO | 77 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 78 ppm |
| NO(15) | 33 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 33 ppm |
| Flow | 0.74 LPM |

Comments:
Klbs/hr - 24

CP59801

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

Signature:

| Date: 10/10/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1236 | 1243 | | |
| Recorded Test | 1246 | 1253 | | |
| O2 | 3.5 % | 7.0 % | | |
| CO | 8 PPM | 0 PPM | | |
| Eff | 82.8 % | 80.2 % | | |
| CO2 | 9.8 % | 7.8 % | | |
| T-Stk | 383 °F | 422 °F | | |
| T-Air | 74.9 °F | 82.2 °F | | |
| EA | 18 % | 45.2 % | | |
| CO (15) | 3 PPM | 0 PPM | | |
| NO | 60 PPM | 77 PPM | | |
| NO2 | 3.9 PPM | 1.1 PPM | | |
| NOX | 64 PPM | 78 PPM | | |
| SO2 | — | — | | |
| NO (15) | 20 PPM | 33 PPM | | |
| NOX (15) | 22 PPM | 33 PPM | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 63 | 24 | | |

Signature: Ken Wilson

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERT

**GT:** RECORD TIME PROBE IS INSERTE

WHEN FINISHED

BHS #4

| Date: 10/17/22 | Mobile BLR ~~BLR 2~~ | BLR 4 |
|---|---|---|
| Start Test | 13:38 | 11:25 |
| Recorded Test | 13:42 | 11:36 |
| O2 | 3.3% | 5.5% |
| CO | 35 ppm | 0 ppm |
| Eff | 80.4% | 77.1% |
| CO2 | 9.9% | 8.7% |
| T-Stk | 479° | 556° |
| T-Air | 77.8° | 78.1° |
| EA | 16.9% | 31.4% |
| CO (15) | 12 ppm | 0 |
| NO | 22.2 ppm | 95 ppm |
| NO2 | 0 | 0 ppm |
| NOX | 22.2 ppm | 95 ppm |
| SO2 | — | — |
| NO (15) | 7 ppm | 36 ppm |
| NOX (15) | 7 ppm | 36 ppm |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** M. Cook

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:42:37 PM
Date: 10/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.3 % |
| CO | 35 ppm |
| Eff | 80.4 % |
| $CO_2$ | 9.9 % |
| T-Stk | 479 °F |
| T-Air | 77.8 °F |
| EA | 16.9 % |
| CO(15) | 12 ppm |
| NO | 22.2 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 22.2 ppm |
| NO(15) | 7 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 7 ppm |
| Flow | 0.74 LPM |

Comments: Mobile Boiler

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:36:30 AM
Date: 10/17/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 77.1 % |
| $CO_2$ | 8.7 % |
| T-Stk | 556 °F |
| T-Air | 78.1 °F |
| EA | 31.4 % |
| CO(15) | 0 ppm |
| NO | 95 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 95 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.73 LPM |

Comments:

| Date: |
|---|
| Start Test |
| Recorded Test |
| O2 |
| CO |
| Eff |
| CO2 |
| T-Stk |
| T-Air |
| EA |
| CO (15) |
| NO |
| NO2 |
| NOX |
| SO2 |
| NO (15) |
| NOX (15) |
| SO2 (15 |
| Mega Watts |
| KSCF/hour |

BACHARACH

BACHARACH, INC. BLR2
PCA 400
SN: 20123585

Time: 11:58:26 AM
Date: 10/24/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.7 % |
| CO | 18 ppm |
| Eff | 83.3 % |
| $CO_2$ | 9.7 % |
| T-Stk | 366 °F |
| T-Air | 78.9 °F |
| EA | 18.9 % |
| CO(15) | 6 ppm |
| NO | 44.2 ppm |
| $NO_2$ | 4.3 ppm |
| NOx | 48.5 ppm |
| NO(15) | 15 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.75 LPM |

Comments:

BACHARACH

BACHARACH, INC. BLR4
PCA 400
SN: 20123585

Time: 09:57:20 AM
Date: 10/24/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.9 % |
| CO | 0 ppm |
| Eff | 79.7 % |
| $CO_2$ | 7.9 % |
| T-Stk | 451 °F |
| T-Air | 95.1 °F |
| EA | 43.9 % |
| CO(15) | 0 ppm |
| NO | 60 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 61 ppm |
| NO(15) | 25 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.75 LPM |

Comments:

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

| Date: 10/24/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1130 | 0941 | | |
| Recorded Test | 1158 | 0957 | | |
| O2 | 3.7% | 6.9% | | |
| CO | 18 ppm | 0 ppm | | |
| Eff | 83.3% | 79.7% | | |
| CO2 | 9.7% | 7.9% | | |
| T-Stk | 366 °F | 451 °F | | |
| T-Air | 78.9 °F | 95.1 °F | | |
| EA | 18.9% | 43.9% | | |
| CO (15) | 6 ppm | 0 ppm | | |
| NO | 44.2 ppm | 60 ppm | | |
| NO2 | 4.3 ppm | 1.3 ppm | | |
| NOX | 48.5 ppm | 61 ppm | | |
| SO2 | XX | XX | | |
| NO (15) | 15 ppm | 25 ppm | | |
| NOX (15) | 17 ppm | 26 ppm | | |
| SO2 (15 | XX | XX | | |
| K lbs/hour | 54 KppH | 32 KppH | | |

**Signature:**

EMI[illegible] K ENERGY

| Date: | G[illegible] | | | T1 | GT2 |
|---|---|---|---|---|---|
| Start Test | | | | | |
| Recorded Test | | | | | |
| O2 | | | | | |
| CO | | | | | |
| Eff | | | | | |
| CO2 | | | | | |
| T-Stk | | | | | |
| T-Air | | | | | |
| EA | | | | | |
| CO (15) | | | | | |
| NO | | | | | |
| NO2 | | | | | |
| NOX | | | | | |
| SO2 | | | | | |
| NO (15) | | | | | |
| NOX (15) | | | | | |
| SO2 (15 | | | | | |
| Mega Watts | | | | | |
| KSCF/hour | | | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:32:08 AM
Date: 10/31/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 6 ppm |
| Eff | 82.4 % |
| $CO_2$ | 9.8 % |
| T-Stk | 399 °F |
| T-Air | 76.4 °F |
| EA | 17.7 % |
| CO(15) | 2 ppm |
| NO | 52 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 55 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.75 LPM |

Comments:
BLR # 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:37:06 AM
Date: 10/31/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.8 % |
| CO | 0 ppm |
| Eff | 79.3 % |
| $CO_2$ | 8.0 % |
| T-Stk | 454 °F |
| T-Air | 80.4 °F |
| EA | 42.6 % |
| CO(15) | 0 ppm |
| NO | 66 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 67 ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.75 LPM |

Comments:
BLR #4

| Date: 10/31/22 | BLR 2 | | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | ~~10~~ 10:25 | | | |
| Recorded Test | 10:32 | | | 10:37 |
| O2 | 3.5% | | | 6.8% |
| CO | 6ppm | | | 0ppm |
| Eff | 82.4% | | | 79.3% |
| CO2 | 9.8% | | | 8.0% |
| T-Stk | 399° | | | 454° |
| T-Air | 76.4° | | | 80.4 |
| EA | 17.7% | | | 42.6% |
| CO (15) | 2ppm | | | 0ppm |
| NO | 52ppm | | | 66ppm |
| NO2 | 3.6ppm | | | 1.2 ppm |
| NOX | 55ppm | | | 67ppm |
| SO2 | | | | |
| NO (15) | 18ppm | | | 27ppm |
| NOX (15) | 19ppm | | | 28ppm |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** M Jackson

D THEN PRINT TEST RESULTS

D THEN PRINT TEST RESULTS

S SHEET

| Date: |
|---|
| Start Test |
| Recorded Test |
| O2 |
| CO |
| Eff |
| CO2 |
| T-Stk |
| T-Air |
| EA |
| CO (15) |
| NO |
| NO2 |
| NOX |
| SO2 |
| NO (15) |
| NOX (15) |
| SO2 (15 |
| Mega Watts |
| KSCF/hour |

BACHARACH

BACHARACH, INC. BLR2
PCA 400
SN: 20123585

Time: 10:06:29 AM
Date: 11/07/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 3.2 % |
| CO | 20 ppm |
| Eff | 82.0 % |
| $CO_2$ | 10.0 % |
| T-Stk | 423 °F |
| T-Air | 80.4 °F |
| EA | 16.2 % |
| CO(15) | 7 ppm |
| NO | 47.4 ppm |
| $NO_2$ | 4.4 ppm |
| NOx | 52 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.75 LPM |

Comments:

PA

BACHARACH

BACHARACH, INC. BLR4
PCA 400
SN: 20123585

Time: 10:22:26 AM
Date: 11/07/22

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 8.8 % |
| CO | 0 ppm |
| Eff | 78.8 % |
| $CO_2$ | 6.8 % |
| T-Stk | 442 °F |
| T-Air | 99.5 °F |
| EA | 65.0 % |
| CO(15) | 0 ppm |
| NO | 32.0 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 33.3 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.75 LPM |

Comments:

CP60808

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

**Signature:** _____

| Date: 11/7/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0850 | 0907 | | |
| Recorded Test | 0906 | 0922 | | |
| O2 | 3.2% | 8.8% | | |
| CO | 20 ppm | 0 ppm | | |
| Eff | 82.0% | 78.8% | | |
| CO2 | 10.0% | 6.8% | | |
| T-Stk | 423°F | 442°F | | |
| T-Air | 80.4°F | 99.5°F | | |
| EA | 16.2% | 65.0% | | |
| CO (15) | 7 ppm | 0 ppm | | |
| NO | 47.4 ppm | 32.0 ppm | | |
| NO2 | 4.4 ppm | 1.2 ppm | | |
| NOX | 52 ppm | 33.3 ppm | | |
| SO2 | XX | XX | | |
| NO (15) | 16 ppm | 16 ppm | | |
| NOX (15) | 17 ppm | 16 ppm | | |
| SO2 (15 | XX | XX | | |
| K lbs/hour | 80 Kppm | 25 Kppm | | |

**Signature:** _____

CP 6082

EMISSION TEST C

| Date: | GT 1 DB | GT |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

BACHARACH #2

BACHARACH, INC.
PCA 400 645
SN: 20123585 1994

Time: 07:59:56 AM
Date: 11/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.2 % |
| CO | 35 ppm |
| Eff | 81.4 % |
| $CO_2$ | 10.0 % |
| T-Stk | 438 °F |
| T-Air | 72.5 °F |
| EA | 16.1 % |
| CO(15) | 12 ppm |
| NO | 57 ppm |
| $NO_2$ | 4.7 ppm |
| NOx | 62 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

Comments: 68

#4

BACHARACH, INC.
~~PCA 400~~ 645
SN: 20123585 1993

Time: 08:05:48 AM
Date: 11/14/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.6 % |
| CO | 0 ppm |
| Eff | 78.1 % |
| $CO_2$ | 8.6 % |
| T-Stk | 516 °F |
| T-Air | 77.0 °F |
| EA | 32.8 % |
| CO(15) | 0 ppm |
| NO | 93 ppm |
| $NO_2$ | 1.5 ppm |
| NOx | 95 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 37 ppm |
| Flow | 0.74 LPM |

Comments: 57

Signature:

| Date: 11/14/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test ~~0805~~ | 0750 | 0800 | | |
| Recorded Test | 0759 | 0805 | | |
| O2 | 3.2% | 5.6% | | |
| CO | 35 PPM | 0 PPM | | |
| Eff | 81.4% | 78.1% | | |
| CO2 | 10.0% | 8.6% | | |
| T-Stk | 438 °F | 516 °F | | |
| T-Air | 72.5 °F | 77.0 °F | | |
| EA | 16.1% | 32.8% | | |
| CO (15) | 12 PPM | 0 PPM | | |
| NO | 57 PPM | 93 PPM | | |
| NO2 | 4.7 PPM | 1.5 PPM | | |
| NOX | 62 PPM | 95 PPM | | |
| SO2 | — | — | | |
| NO (15) | 19 PPM | 36 PPM | | |
| NOX (15) | 21 PPM | 37 PPM | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 68 | 51 | | |

Signature: Kenneth Wil

UTES AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

#2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:22:17 AM
Date: 11/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 45 ppm |
| Eff | 80.4 % |
| $CO_2$ | 9.8 % |
| T-Stk | 462 °F |
| T-Air | 65.7 °F |
| EA | 17.7 % |
| CO(15) | 15 ppm |
| NO | 56 ppm |
| $NO_2$ | 5.3 ppm |
| NOx | 61 ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

Comments: Boiler #2

#4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:27:51 AM
Date: 11/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.4 % |
| CO | 0 ppm |
| Eff | 77.2 % |
| $CO_2$ | 8.7 % |
| T-Stk | 545 °F |
| T-Air | 68.4 °F |
| EA | 31.1 % |
| CO(15) | 0 ppm |
| NO | 99 ppm |
| $NO_2$ | 2.3 ppm |
| NOx | 101 ppm |
| NO(15) | 38 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 39 ppm |
| Flow | 0.75 LPM |

Comments: Boiler #4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:01:02 PM
Date: 11/21/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.8 % |
| CO | 24 ppm |
| Eff | 80.4 % |
| $CO_2$ | 9.7 % |
| T-Stk | 464 °F |
| T-Air | 68.6 °F |
| EA | 19.5 % |
| CO(15) | 8 ppm |
| NO | 25.0 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 25.0 ppm |
| NO(15) | 9 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 9 ppm |
| Flow | 0.75 LPM |

Comments: Mobile Boiler

**Signature:**

| Date: | BLR 2 | BLR 4 | MOBILE ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 0807 | 0812 | 1341 | |
| Recorded Test | 0822 | 0827 | 1401 | |
| O2 | 3.5% | 5.4% | 3.8% | |
| CO | 45 PPM | 0 PPM | 24 PPM | |
| Eff | 80.4% | 77.2% | 80.4% | |
| CO2 | 9.8% | 8.7% | 9.7% | |
| T-Stk | 462 °F | 545 °F | 464 °F | |
| T-Air | 65.7% | 68.4 °F | 68.6 °F | |
| EA | 17.7% | 31.1% | 19.5% | |
| CO (15) | 15 PPM | 0 PPM | 8 PPM | |
| NO | 56 PPM | 99 PPM | 25 PPM | |
| NO2 | 5.3 PPM | 2.3 PPM | 0 PPM | |
| NOX | 61 PPM | 101 PPM | 25 PPM | |
| SO2 | — | — | — | |
| NO (15) | 19 PPM | 38 PPM | 0 PPM | |
| NOX (15) | 21 PPM | 39 PPM | 9 PPM | |
| SO2 (15 | — | — | — | |
| K lbs/hour | 95 | 55 | 30 | |

**Signature:** Mike Alvarado

M TO THIS SHEET

UTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

## EMISSION TI … GY

| Date: | GT 1 DB | GT2 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:07:54 PM
Date: 11/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.5 % |
| CO | 18 ppm |
| Eff | 81.7 % |
| $CO_2$ | 9.8 % |
| T-Stk | 440 °F |
| T-Air | 88.9 °F |
| EA | 17.7 % |
| CO(15) | 6 ppm |
| NO | 52 ppm |
| $NO_2$ | 4.6 ppm |
| NOx | 57 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.73 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:31:10 PM
Date: 11/28/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.0 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.4 % |
| T-Stk | 480 °F |
| T-Air | 108.3 °F |
| EA | 36.2 % |
| CO(15) | 0 ppm |
| NO | 74 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 76 ppm |
| NO(15) | 30 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.73 LPM |

Comments:

**Signature:**

| Date: 11/28/22 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 21:52 | 22:15 |
| Recorded Test | 22:07 | 22:31 |
| O2 | 3.5% | 6.0% |
| CO | 18ppm | 0ppm |
| Eff | 81.7% | 79.8% |
| CO2 | 9.8% | 8.4% |
| T-Stk | 440° | 480° |
| T-Air | 88.9° | 108° |
| EA | 17.7% | 36.2% |
| CO (15) | 6ppm | 0ppm |
| NO | 52ppm | 74ppm |
| NO2 | 4.6ppm | 1.3ppm |
| NOX | 57ppm | 76ppm |
| SO2 | | |
| NO (15) | 18ppm | 30ppm |
| NOX (15) | 19ppm | 30ppm |
| SO2 (15 | | |
| K lbs/hour | 85 | 40 |

**Signature:** N. Jackson

TES AND THEN PRINT TEST RESULTS

ES AND THEN PRINT TEST RESULTS

TO THIS SHEET

CP61650

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

Signature:

MOBILE

| Date: 12/05/22 | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | 0938 | 0943 | 0950 | |
| Recorded Test | 0942 | 0949 | 0957 | |
| O2 | 3.7 % | 6.% | 4 % | |
| CO | 13 PPM | 0 PPM | 22 PPM | |
| Eff | 81.6 % | 78.4 % | 80.7 % | |
| CO2 | 9.7 % | 8.4 % | 9.6 % | |
| T-Stk | 420 °F | 501 °F | 462 °F | |
| T-Air | 71.3 °F | 81.5 °F | 82.5 °F | |
| EA | 19 % | 35.8 % | 20.8 % | |
| CO (15) | ~~19~~ 5 PPM | 0 PPM | 8 PPM | |
| NO | 54 PPM | 88 PPM | 21.6 PPM | |
| NO2 | 5.1 PPM | 2.0 PPM | 1.0 PPM | |
| NOX | 59 PPM | 90 PPM | 22.6 PPM | |
| SO2 | — | — | — | |
| NO (15) | 19 PPM | 35 PPM | 8 PPM | |
| NOX (15) | 20 PPM | 36 PPM | 8 PPM | |
| SO2 (15 | — | — | — | |
| K lbs/hour | 75 | 50 | 55 | |

Signature: Kenneth Wilson

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), WAIT ~~15~~ 3-5 MINUTES AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH
BLR 2
BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:42:30 AM
Date: 12/05/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.7 % |
| CO | 13 ppm |
| Eff | 81.6 % |
| $CO_2$ | 9.7 % |
| T-Stk | 420 °F |
| T-Air | 71.3 °F |
| EA | 19.0 % |
| CO(15) | 5 ppm |
| NO | 54 ppm |
| $NO_2$ | 5.1 ppm |
| NOx | 59 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.74 LPM |

Comments:

75

BACHARACH
BLR 4
BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:49:52 AM
Date: 12/05/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.0 % |
| CO | 0 ppm |
| Eff | 78.4 % |
| $CO_2$ | 8.4 % |
| T-Stk | 501 °F |
| T-Air | 81.5 °F |
| EA | 35.8 % |
| CO(15) | 0 ppm |
| NO | 88 ppm |
| $NO_2$ | 2.0 ppm |
| NOx | 90 ppm |
| NO(15) | 35 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.73 LPM |

Comments:

50

BACHARACH
MOBILE
BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:57:51 AM
Date: 12/05/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.0 % |
| CO | 22 ppm |
| Eff | 80.7 % |
| $CO_2$ | 9.6 % |
| T-Stk | 462 °F |
| T-Air | 82.5 °F |
| EA | 20.8 % |
| CO(15) | 8 ppm |
| NO | 21.6 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 22.6 ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 8 ppm |
| Flow | 0.76 LPM |

Comments: 55

CP61650

CP 61810

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/12/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | 11:22 |
| Recorded Test | | | | 11:28 |
| O2 | | | | 15.6% |
| CO | | | | 5ppm |
| Eff | | | | 99.2% |
| CO2 | | | | 3.0% |
| T-Stk | | | | 77°F |
| T-Air | | | | 73.6°F |
| EA | | | | 250.0% |
| CO (15) | | | | 5ppm |
| NO | | | | 25.1ppm |
| NO2 | | | | 0 ppm |
| NOX | | | | 25.1 ppm |
| SO2 | | | | XX |
| NO (15) | | | | 28 ppm |
| NOX (15) | | | | 28 ppm |
| SO2 (15 | | | | XX |
| Mega Watts | | | | 10.5MW |
| KSCF/hour | | | | |

**Signature:** [signature]

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH GT2

BACHARACH INC.
PCA 400
SN: 20123585

Time: 11:28:12 AM
Date: 12/12/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 5 ppm |
| Eff | 99.2 % |
| $CO_2$ | 3.0 % |
| T-Stk | 77 °F |
| T-Air | 73.6 °F |
| EA | 250.0 % |
| CO(15) | 5 ppm |
| NO | 25.1 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 25.1 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.78 LPM |

Comments:

IINUTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

JRM TO THIS SHEET

| Date: 12/12/22 |
|---|
| Start Test |
| Recorded Test |
| O2 |
| CO |
| Eff |
| CO2 |
| T-Stk |
| T-Air |
| EA |
| CO (15) |
| NO |
| NO2 |
| NOX |
| SO2 |
| NO (15) |
| NOX (15) |
| SO2 (15 |
| Mega Watts |
| KSCF/hour |

BLR 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:04:33 AM
Date: 12/12/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 13 ppm |
| Eff | 81.2 % |
| $CO_2$ | 9.9 % |
| T-Stk | 448 °F |
| T-Air | 78.2 °F |
| EA | 17.5 % |
| CO(15) | 4 ppm |
| NO | 59 ppm |
| $NO_2$ | 4.4 ppm |
| NOx | 63 ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.74 LPM |

100 KpH

Comments:

BLR 4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:22:59 AM
Date: 12/12/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.4 % |
| CO | 0 ppm |
| Eff | 77.6 % |
| $CO_2$ | 8.8 % |
| T-Stk | 567 °F |
| T-Air | 104.9 °F |
| EA | 30.8 % |
| CO(15) | 0 ppm |
| NO | 84 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 86 ppm |
| NO(15) | 32 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 33 ppm |
| Flow | 0.74 LPM |

60 KpH

Comments:

CP61810

Boiler: RECORD TIME PROBE IS INSERTED (Start), W

GT: RECORD TIME PROBE IS INSERTED (Start), WAI

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

Signature:

| Date: 12/12/22 | BLR 2 | BLR 4 | BLR 3 ~~GT~~ |
|---|---|---|---|
| Start Test | 0747 | 0806 | 1103 |
| Recorded Test | 0804 | 0822 | 1119 |
| O2 | 3.4% | 5.4% | 6.1% |
| CO | 13ppm | 0ppm | 1ppm |
| Eff | 81.2% | 77.6% | 81.5% |
| CO2 | 9.9% | 8.8% | 8.4% |
| T-Stk | 448°F | 567°F | 391°F |
| T-Air | 78.2°F | 104.9°F | 75.7°F |
| EA | 17.5% | 30.8% | 36.4% |
| CO (15) | 4ppm | 0ppm | 0ppm |
| NO | 59ppm | 84ppm | 23.7ppm |
| NO2 | 4.4ppm | 2.4ppm | 1.4ppm |
| NOX | 63ppm | 86ppm | 25.1ppm |
| SO2 | XX | XX | XX |
| NO (15) | 20 | 32ppm | 9ppm |
| NOX (15) | 21 | 33ppm | 10ppm |
| SO2 (15 | XX | XX | XX |
| K lbs/hour | 100KpH | 60KpH | 20% |

Signature:

BACHARACH, INC. Mobile BLR
PCA 400
SN: 20123585

Time: 11:19:21 AM
Date: 12/12/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.1 % |
| CO | 1 ppm |
| Eff | 81.5 % |
| $CO_2$ | 8.4 % |
| T-Stk | 391 °F |
| T-Air | 75.7 °F |
| EA | 36.4 % |
| CO(15) | 0 ppm |
| NO | 23.7 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 25.1 ppm |
| NO(15) | 9 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 10 ppm |
| Flow | 0.78 LPM |

Comments:

EMISSION TEST COLLI

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

Signature:

BLR 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:55:58 PM
Date: 12/19/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.2 % |
| CO | 0 ppm |
| Eff | 83.9 % |
| $CO_2$ | 8.9 % |
| T-Stk | 317 °F |
| T-Air | 72.1 °F |
| EA | 29.4 % |
| CO(15) | 0 ppm |
| NO | 67 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 69 ppm |
| NO(15) | 25 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.77 LPM |

Comments:

KLBS - 32

BLR 4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:07:45 PM
Date: 12/19/22

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.6 % |
| CO | 0 ppm |
| Eff | 78.2 % |
| $CO_2$ | 8.6 % |
| T-Stk | 514 °F |
| T-Air | 79.9 °F |
| EA | 32.4 % |
| CO(15) | 0 ppm |
| NO | 102 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 103 ppm |
| NO(15) | 39 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 40 ppm |
| Flow | 0.77 LPM |

Comments:

KLbs - 70

| Date: 12/19/22 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1252 | 1304 | | |
| Recorded Test | 1255 | 1307 | | |
| O2 | 5.2 % | 5.6 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 83.9 % | 78.2 % | | |
| CO2 | 8.9 % | 8.6 % | | |
| T-Stk | 317 °F | 514 °F | | |
| T-Air | 72.1 °F | 79.9 °F | | |
| EA | 29.4 % | 32.4 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 67 PPM | 102 PPM | | |
| NO2 | 1.4 PPM | 1.1 PPM | | |
| NOX | 69 PPM | 103 PPM | | |
| SO2 | *** | *** | | |
| NO (15) | 25 PPM | 39 PPM | | |
| NOX (15) | 26 PPM | 40 PPM | | |
| SO2 (15 | *** | *** | | |
| K lbs/hour | 32 | 70 | | |

Signature: Kenneth Wile

INUTES AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

ORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/27/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 07:25 | | |
| Recorded Test | | 07:32 | 07:09 | |
| O2 | | 13.7% | 16% | |
| CO | | 8ppm | 0ppm | |
| Eff | | 78.2% | 100% | |
| CO2 | | 4.1% | 2.8% | |
| T-Stk | | 296°F | 66°F | |
| T-Air | | 66.2°F | 76.5°F | |
| EA | | 170.3% | 250% | |
| CO (15) | | 6ppm | 0ppm | |
| NO | | 20.6ppm | 13ppm | |
| NO2 | | 4.1ppm | 0ppm | |
| NOX | | 24.7ppm | 13ppm | |
| SO2 | | | | |
| NO (15) | | 17ppm | 16ppm | |
| NOX (15) | | 20ppm | 16ppm | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

Mobile BLR

| Date: 12/27/22 | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | ~~06:38~~ 06:38 | | 07:09 | 06:20 |
| Recorded Test | 06:53 | | 07:19 | 06:36 |
| O2 | 8.9% | | 6.6% | 5.6% |
| CO | 43ppm | | 0ppm | 0ppm |
| Eff | 83.2ppm | | 81.3% | 78.9% |
| CO2 | 6.8% | | 8.1% | 8.6% |
| T-Stk | 302° F | | 389° F | 487° F |
| T-Air | 84.3°F | | 75.3°F | 77.0 F |
| EA | 66.1% | | 40.8% | 32.8% |
| CO (15) | 21ppm | | 0ppm | 8ppm |
| NO | 31ppm | | 26.1ppm | 98ppm |
| NO2 | 12.4ppm | | 0ppm | 0ppm |
| NOX | 43.4ppm | | 26.1ppm | 98ppm |
| SO2 | | | | |
| NO (15) | 15ppm | | 11ppm | 38ppm |
| NOX (15) | 21ppm | | 11ppm | 38ppm |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** N. Jackson

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:32:17 AM
Date: 12/27/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 8 ppm |
| Eff | 78.2 % |
| $CO_2$ | 4.1 % |
| T-Stk | 296 °F |
| T-Air | 66.2 °F |
| EA | 170.3 % |
| CO(15) | 6 ppm |
| NO | 20.6 ppm |
| $NO_2$ | 4.1 ppm |
| NOx | 24.7 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.78 LPM |

Comments:
GT#2 w/DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:09:33 AM
Date: 12/27/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 100.0 % |
| $CO_2$ | 2.8 % |
| T-Stk | 66 °F |
| T-Air | 76.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 13.0 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 13.0 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.80 LPM |

Comments:
GT#1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:53:04 AM
Date: 12/27/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.9 % |
| CO | 43 ppm |
| Eff | 83.2 % |
| $CO_2$ | 6.8 % |
| T-Stk | 302 °F |
| T-Air | 84.3 °F |
| EA | 66.1 % |
| CO(15) | 21 ppm |
| NO | 31.0 ppm |
| $NO_2$ | 12.4 ppm |
| NOx | 43.4 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 6 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.77 LPM |

Comments:
#2 B/R

#4 B/R

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:36:38 AM
Date: 12/27/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.6 % |
| CO | 0 ppm |
| Eff | 78.9 % |
| $CO_2$ | 8.6 % |
| T-Stk | 487 °F |
| T-Air | 77.0 °F |
| EA | 32.8 % |
| CO(15) | 0 ppm |
| NO | 98 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 98 ppm |
| NO(15) | 38 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 38 ppm |
| Flow | 0.77 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:19:19 AM
Date: 12/27/22

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.6 % |
| CO | 0 ppm |
| Eff | 81.3 % |
| $CO_2$ | 8.1 % |
| T-Stk | 389 °F |
| T-Air | 75.3 °F |
| EA | 40.8 % |
| CO(15) | 0 ppm |
| NO | 26.1 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 26.1 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 11 ppm |
| Flow | 0.78 LPM |

Comments:
Mobile B/R

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

April 18, 2023

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of January 1, 2023, through March 31, 2023.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Mark Alexander, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility January 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 244.70 | 0.00 | 103330.94 | 0.00 | | 637,140,000 | 0 | 667,372 | 0 | 0.0517 | 0.0000 | 0.0517 | 6.2515 | 0.0000 | 6.2515 | 0.1550 | 0.0000 | 0.1550 | 0.3100 | 0.0000 | 0.3100 | 0.2532 | 0.0000 | 0.2532 | 0.2532 | 0.0000 | 0.2532 |
| Turbine 2 | 701.60 | 0.00 | 69508.78 | 0.00 | | 556,820,000 | 0 | 583,241 | 0 | 0.0695 | 0.0000 | 0.0695 | 4.4833 | 0.0000 | 4.4833 | 0.4866 | 0.0000 | 0.4866 | 0.2085 | 0.0000 | 0.2085 | 0.1251 | 0.0000 | 0.1251 | 0.1251 | 0.0000 | 0.1251 |
| Duct Burner 1 | 66.70 | | 1958.73 | | | 107,760,000 | | 112,873 | | 0.0053 | | 0.0053 | 0.0127 | | 0.0127 | 0.0098 | | 0.0098 | 0.0006 | | 0.0006 | 0.0019 | | 0.0019 | 0.0019 | | 0.0019 |
| Duct Burner 2 | 591.30 | | 23588.57 | | | 87,460,000 | | 91,610 | | 0.0636 | | 0.0636 | 0.1533 | | 0.1533 | 0.1179 | | 0.1179 | 0.0069 | | 0.0069 | 0.0231 | | 0.0231 | 0.0231 | | 0.0231 |
| Boiler 2 | 492.80 | 5.60 | 4884.26 | 553.44 | | | | | | 0.0006 | 0.0004 | 0.0010 | 0.2482 | 0.0338 | 0.2820 | 0.0013 | 0.0061 | 0.0074 | 0.0014 | 0.0122 | 0.0136 | 0.0219 | 0.0216 | 0.0436 | 0.0219 | 0.0216 | 0.0436 |
| Boiler 4 | 709.90 | 5.00 | 6565.42 | 451.75 | | | | | | 0.0014 | 0.0003 | 0.0017 | 0.3364 | 0.0295 | 0.3659 | 0.0071 | 0.0069 | 0.0140 | 0.0019 | 0.0097 | 0.0116 | 0.0198 | 0.0156 | 0.0354 | 0.0198 | 0.0156 | 0.0354 |
| Emerg. Gen. | | 0.50 | | 3.88 | 0.5 | | | | | | 0.0002 | 0.0002 | | 0.0062 | 0.0062 | | 0.0016 | 0.0016 | | 0.0000 | 0.0000 | | 0.0001 | 0.0001 | | 0.0001 | 0.0001 |
| Mobile Boiler | 74.70 | 7.00 | 785.59 | 2948.00 | | | | | | 0.0016 | 0.0008 | 0.0024 | 0.0141 | 0.0405 | 0.0546 | 0.0147 | 0.0076 | 0.0223 | 0.0002 | 0.0003 | 0.0006 | 0.0042 | 0.0198 | 0.0239 | 0.0042 | 0.0198 | 0.0239 |
| Emissions Total | | | | | | | | | | 0.1936 | 0.0017 | 0.1953 | 11.4996 | 0.1099 | 11.6096 | 0.7925 | 0.0222 | 0.8147 | 0.5296 | 0.0222 | 0.5519 | 0.4492 | 0.0571 | 0.5063 | 0.4492 | 0.0572 | 0.5064 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.68 | 128.91 | 7.30 | 4.21 | 6.57 | 6.57 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility February 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 568,090,000 | 0 | 595,046 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 524.20 | 0.00 | 65538.95 | 0.00 | | 540,780,000 | 0 | 566,440 | 0 | 0.0655 | 0.0000 | 0.0655 | 4.2273 | 0.0000 | 4.2273 | 0.4588 | 0.0000 | 0.4588 | 0.1966 | 0.0000 | 0.1966 | 0.1180 | 0.0000 | 0.1180 | 0.1180 | 0.0000 | 0.1180 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 93,640,000 | | 98,083 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 480.00 | | 21263.24 | | | 90,830,000 | | 95,140 | | 0.0573 | | 0.0573 | 0.1382 | | 0.1382 | 0.1063 | | 0.1063 | 0.0063 | | 0.0063 | 0.0209 | | 0.0209 | 0.0209 | | 0.0209 |
| Boiler 2 | 407.50 | 10.20 | 12839.64 | 497.59 | | | | | | 0.0015 | 0.0004 | 0.0019 | 0.6526 | 0.0303 | 0.6829 | 0.0035 | 0.0055 | 0.0090 | 0.0038 | 0.0110 | 0.0148 | 0.0576 | 0.0195 | 0.0771 | 0.0576 | 0.0195 | 0.0771 |
| Boiler 4 | 649.60 | 5.40 | 20103.71 | 692.45 | | | | | | 0.0043 | 0.0005 | 0.0048 | 1.0300 | 0.0452 | 1.0752 | 0.0217 | 0.0105 | 0.0323 | 0.0059 | 0.0149 | 0.0208 | 0.0606 | 0.0239 | 0.0845 | 0.0606 | 0.0239 | 0.0845 |
| Emerg. Gen. | | 0.50 | | 6.587 | 1.0 | | | | | | 0.0003 | 0.0003 | | 0.0105 | 0.0105 | | 0.0028 | 0.0028 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 108.40 | 4.80 | 1295.70 | 2021.00 | | | | | | 0.0026 | 0.0006 | 0.0031 | 0.0233 | 0.0277 | 0.0511 | 0.0243 | 0.0052 | 0.0295 | 0.0004 | 0.0002 | 0.0006 | 0.0069 | 0.0135 | 0.0204 | 0.0069 | 0.0135 | 0.0204 |
| Emissions Total | | | | | | | | | | 0.1313 | 0.0017 | 0.1330 | 6.0713 | 0.1139 | 6.1852 | 0.6147 | 0.0240 | 0.6387 | 0.2129 | 0.0261 | 0.2390 | 0.2639 | 0.0571 | 0.3210 | 0.2639 | 0.0572 | 0.3211 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.60 | 123.67 | 7.01 | 3.91 | 6.36 | 6.36 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility March 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 524,600,000 | 0 | 549,492 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 733.00 | 0.00 | 91808.99 | 0.00 | | 554,390,000 | 0 | 580,696 | 0 | 0.0918 | 0.0000 | 0.0918 | 5.9217 | 0.0000 | 5.9217 | 0.6427 | 0.0000 | 0.6427 | 0.2754 | 0.0000 | 0.2754 | 0.1653 | 0.0000 | 0.1653 | 0.1653 | 0.0000 | 0.1653 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 85,000,000 | | 89,033 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 732.70 | | 16088.83 | | | 83,820,000 | | 87,797 | | 0.0434 | | 0.0434 | 0.1046 | | 0.1046 | 0.0804 | | 0.0804 | 0.0047 | | 0.0047 | 0.0158 | | 0.0158 | 0.0158 | | 0.0158 |
| Boiler 2 | 74.10 | 4.00 | 86.94 | 247.01 | | | | | | 0.0000 | 0.0002 | 0.0002 | 0.0044 | 0.0151 | 0.0195 | 0.0000 | 0.0027 | 0.0027 | 0.0000 | 0.0055 | 0.0055 | 0.0004 | 0.0097 | 0.0101 | 0.0004 | 0.0097 | 0.0101 |
| Boiler 4 | 592.30 | 4.50 | 4457.95 | 262.24 | | | | | | 0.0010 | 0.0002 | 0.0011 | 0.2284 | 0.0171 | 0.2455 | 0.0048 | 0.0040 | 0.0088 | 0.0013 | 0.0056 | 0.0069 | 0.0134 | 0.0091 | 0.0225 | 0.0134 | 0.0091 | 0.0225 |
| Emerg. Gen. | | 0.00 | | 0.000 | 1.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 643.80 | 4.00 | 4894.73 | 2134.00 | | | | | | 0.0098 | 0.0006 | 0.0104 | 0.0881 | 0.0293 | 0.1174 | 0.0918 | 0.0055 | 0.0973 | 0.0015 | 0.0002 | 0.0017 | 0.0259 | 0.0143 | 0.0402 | 0.0259 | 0.0143 | 0.0402 |
| Emissions Total | | | | | | | | | | 0.1459 | 0.0010 | 0.1469 | 6.3472 | 0.0615 | 6.4087 | 0.8197 | 0.0122 | 0.8319 | 0.2830 | 0.0113 | 0.2943 | 0.2208 | 0.0330 | 0.2538 | 0.2208 | 0.0330 | 0.2538 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.54 | 119.52 | 6.98 | 3.82 | 6.14 | 6.15 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: 1/2/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 13:41:34 | 12:57:55 | | |
| Recorded Test | | | | |
| O2 | 9% | 3.4% | | |
| CO | 0 | 8 PPM | | |
| Eff | 78.3% | 82.1% | | |
| CO2 | 6.7% | 9.9% | | |
| T-Stk | 470 °F | 403°F | | |
| T-Air | 119.2 °F | 68.3°F | | |
| EA | 67.7% | 17.2% | | |
| CO (15) | 0 | 3 PPM | | |
| NO | 34.7 PPM | 53 PPM | | |
| NO2 | 0 PPM | 2.3 PPM | | |
| NOX | 34.7 PPM | 56 PPM | | |
| SO2 | | | | |
| NO (15) | 17 PPM | 18 PPM | | |
| NOX (15) | 17 PPM | 19 PPM | | |
| SO2 (15 | | | | |
| K lbs/hour | 20 | 30 | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:57:55 PM
Date: 01/02/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 8 ppm |
| Eff | 82.1 % |
| $CO_2$ | 9.9 % |
| T-Stk | 403 °F |
| T-Air | 68.3 °F |
| EA | 17.2 % |
| CO(15) | 3 ppm |
| NO | 53 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 56 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments:

Boiler 4

Boiler: RECURU LIME PROBE IS INSERTED (START) WALL TO INCLUDE AND LIGHT INSERTED

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 01:41:34 PM
Date: 01/02/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 9.0 % |
| CO | 0 ppm |
| Eff | 78.3 % |
| $CO_2$ | 6.7 % |
| T-Stk | 470 °F |
| T-Air | 119.2 °F |
| EA | 67.7 % |
| CO(15) | 0 ppm |
| NO | 34.7 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 34.7 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

Boiler 2

CP 62307

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 1/9/22 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1134 | 1124 | |
| Recorded Test | | 1137 | 1127 | |
| O2 | | 14.2 % | 15.9 % | |
| CO | | 3 PPM | 1 PPM | |
| Eff | | 80.5 % | 100 % | |
| CO2 | | 3.8 % | 2.8 % | |
| T-Stk | | 254 °F | 69 °F | |
| T-Air | | 76.1°F | 76.1 °F | |
| EA | | 187.8 % | 250 % | |
| CO (15) | | 2 PPM | 1 PPM | |
| NO | | 21.7 PPM | 16.8 PPM | |
| NO2 | | 3.5 PPM | 0 PPM | |
| NOX | | 25.1 PPM | 16.8 PPM | |
| SO2 | | — | — | |
| NO (15) | | 19 PPM | 20 PPM | |
| NOX (15) | | 22 PPM | 20 PPM | |
| SO2 (15 | | — | — | |
| Mega Watts | | 10 | 10.5 | |
| KSCF/hour | | 34 | | |

Signature: Kenneth C

| Date: 1/9/22 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 1151 | | |
| Recorded Test | | 1206 | | |
| O2 | | 5.7 % | | |
| CO | | 0 PPM | | |
| Eff | | 77.9 % | | |
| CO2 | | 8.6 % | | |
| T-Stk | | 529 °F | | |
| T-Air | | 83.2 °F | | |
| EA | | 33.2 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 91 PPM | | |
| NO2 | | 1.5 PPM | | |
| NOX | | 93 PPM | | |
| SO2 | | — | | |
| NO (15) | | 35 PPM | | |
| NOX (15) | | 36 PPM | | |
| SO2 (15 | | — | | |
| K lbs/hour | | 48 | | |

Signature: Ken

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:27:51 AM
Date: 01/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 1 ppm |
| Eff | 100.0 % |
| $CO_2$ | 2.8 % |
| T-Stk | 69 °F |
| T-Air | 76.1 °F |
| EA | 250.0 % |
| CO(15) | 1 ppm |
| NO | 16.8 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 16.8 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.80 LPM |

Comments:
10:5

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:37:44 AM
Date: 01/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.2 % |
| CO | 3 ppm |
| Eff | 80.5 % |
| $CO_2$ | 3.8 % |
| T-Stk | 254 °F |
| T-Air | 76.1 °F |
| EA | 187.8 % |
| CO(15) | 2 ppm |
| NO | 21.7 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 25.1 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

Comments: 34
GT #2
MW 10 Stack

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 12:06:04 PM
Date: 01/09/23

#BLR #4
Fuel
NGAS
BLR #4

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 0 ppm |
| Eff | 77.9 % |
| $CO_2$ | 8.6 % |
| T-Stk | 529 °F |
| T-Air | 83.2 °F |
| EA | 33.2 % |
| CO(15) | 0 ppm |
| NO | 91 ppm |
| $NO_2$ | 1.5 ppm |
| NOx | 93 ppm |
| NO(15) | 35 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.79 LPM |

Comments:
# BLR
4 48

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:43:29 AM
Date: 01/16/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 63 ppm |
| Eff | 27.1 % |
| $CO_2$ | 2.9 % |
| T-Stk | 925 °F |
| T-Air | 80.8 °F |
| EA | 250.0 % |
| CO(15) | 73 ppm |
| NO | 22.1 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 22.1 ppm |
| NO(15) | 26 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.77 LPM |

Comments:
GT1

E PARK ENERGY

| Date: | GT1 | GT2 |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:51:18 AM
Date: 01/16/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 0 ppm |
| Eff | 78.8 % |
| $CO_2$ | 8.6 % |
| T-Stk | 479 °F |
| T-Air | 65.7 °F |
| EA | 33.5 % |
| CO(15) | 0 ppm |
| NO | 83 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 84 ppm |
| NO(15) | 32 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.77 LPM |

Comments: 38 lbs/hr
Boiler 4

| Date: 1/16/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 08:08:28 | 07:51:18 | | |
| Recorded Test | | | | |
| O2 | 7.9 % | 5.7 % | | |
| CO | 7 PPM | 0 PPM | | |
| Eff | 83.8 % | 78.8 % | | |
| CO2 | 7.4 % | 8.6 % | | |
| T-Stk | 299 °F | 479 °F | | |
| T-Air | 84.3 °F | 65.7 °F | | |
| EA | 53.6 % | 33.5 % | | |
| CO (15) | 3 PPM | 0 PPM | | |
| NO | 40.9 PPM | 83 PPM | | |
| NO2 | 7.6 PPM | 1.0 PPM | | |
| NOX | 48.4 PPM | 84 PPM | | |
| SO2 | | | | |
| NO (15) | 18 PPM | 32 PPM | | |
| NOX (15) | 22 PPM | 32 PPM | | |
| SO2 (15 | | | | |
| K lbs/hour | 22 | 38 | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:08:28 AM
Date: 01/16/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.9 % |
| CO | 7 ppm |
| Eff | 83.8 % |
| $CO_2$ | 7.4 % |
| T-Stk | 299 °F |
| T-Air | 84.3 °F |
| EA | 53.6 % |
| CO(15) | 3 ppm |
| NO | 40.9 ppm |
| $NO_2$ | 7.6 ppm |
| NOx | 48.4 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:
Boiler 2 22 lbs/hr

CP 62716

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 1/23/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 1547 | | |
| Recorded Test | | 1550 | | |
| O2 | | 14.3% | | |
| CO | | 4 PPM | | |
| Eff | | 80.1% | | |
| CO2 | | 3.7% | | |
| T-Stk | | 253 F | | |
| T-Air | | 70.5 F | | |
| EA | | 192.7% | | |
| CO (15) | | 3 PPM | | |
| NO | | 21.2 PPM | | |
| NO2 | | 3.2 PPM | | |
| NOX | | 24.4 PPM | | |
| SO2 | | — | | |
| NO (15) | | 19 PPM | | |
| NOX (15) | | 22 PPM | | |
| SO2 (15 | | — | | |
| Mega Watts | | 9.0 | | |
| KSCF/hour | | 48 | | |

Signature: Spencer Jones

| Date: 1/23/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1517 | 1522 | | |
| Recorded Test | 1532 | 1537 | | |
| O2 | 6.0% | 6.2% | | |
| CO | 7 PPM | 0 PPM | | |
| Eff | 84.3% | 79.2% | | |
| CO2 | 8.4% | 8.3% | | |
| T-Stk | 301 F | 470 F | | |
| T-Air | 78.1 F | 81.6 F | | |
| EA | 35.4% | 37.3% | | |
| CO (15) | 3 PPM | 0 PPM | | |
| NO | 47.4 PPM | 76 PPM | | |
| NO2 | 2.9 PPM | 1.0 PPM | | |
| NOX | 50 PPM | 77 PPM | | |
| SO2 | — | — | | |
| NO (15) | 19 PPM | 30 PPM | | |
| NOX (15) | 20 PPM | 31 PPM | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 26 | 30 | | |

Signature: Spencer Jones

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT2DB
~~#25~~

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 03:50:35 PM
Date: 01/23/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.3 % |
| CO | 4 ppm |
| Eff | 80.1 % |
| $CO_2$ | 3.7 % |
| T-Stk | 253 °F |
| T-Air | 70.5 °F |
| EA | 192.7 % |
| CO(15) | 3 ppm |
| NO | 21.2 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 24.4 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

Comments:

MW 9.0

89

KCFH 48

#2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 03:32:31 PM
Date: 01/23/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.0 % |
| CO | 7 ppm |
| Eff | 84.3 % |
| $CO_2$ | 8.4 % |
| T-Stk | 301 °F |
| T-Air | 78.1 °F |
| EA | 35.4 % |
| CO(15) | 3 ppm |
| NO | 47.4 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 50 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.77 LPM |

Comments:

~~KPPH~~ KLBS 24

#4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 03:37:37 PM
Date: 01/23/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 6.2 % |
| CO | 0 ppm |
| Eff | 79.2 % |
| $CO_2$ | 8.3 % |
| T-Stk | 470 °F |
| T-Air | 81.6 °F |
| EA | 37.3 % |
| CO(15) | 0 ppm |
| NO | 76 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 77 ppm |
| NO(15) | 30 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 31 ppm |
| Flow | 0.77 LPM |

Comments:

KPPH 30

Boiler #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:30:17 AM
Date: 01/30/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.5 % |
| CO | 25 ppm |
| Eff | 83.3 % |
| $CO_2$ | 7.0 % |
| T-Stk | 293 °F |
| T-Air | 72.4 °F |
| EA | 61.3 % |
| CO(15) | 12 ppm |
| NO | 34.6 ppm |
| $NO_2$ | 10.1 ppm |
| NOx | 44.7 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.78 LPM |

SSION TEST COLLEGE PARK EN

| GT 1 DB | GT 2 DB | GT1 |
|---|---|---|
| | 08:26 AM | |
| | 08:41 AM | |
| | 13.6 % | |
| | 6 ppm | |
| | 79.7 % | |
| | 4.1 % | |
| | 285 F | |
| | 78.5 F | |
| | 165.0 % | |
| | 4 ppm | |
| | 19.2 ppm | |
| | 3.3 ppm | |
| | 22.5 ppm | |
| | / | |
| | 15 ppm | |
| | 18 ppm | |
| | / | |
| | 9.5 | |
| | 22 | |

GT#2
DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:41:20 AM
Date: 01/30/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.6 % |
| CO | 6 ppm |
| Eff | 79.7 % |
| $CO_2$ | 4.1 % |
| T-Stk | 285 °F |
| T-Air | 78.5 °F |
| EA | 165.0 % |
| CO(15) | 4 ppm |
| NO | 19.2 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 22.5 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.79 LPM |

Comments:

GT: RECORD TIME PROBE IS INSERTED (Start), WHEN FINISHED TESTING

| Date: | BLR 2 | BLR 4 | BLR 2 |
|---|---|---|---|
| Start Test | 08:27 AM | 08:33 AM | |
| Recorded Test | 08:30 AM | 08:35 AM | |
| O2 | 8.5 % | 6.3 % | |
| CO | 25 ppm | 0 ppm | |
| Eff | 83.3 % | 78.7 % | |
| CO2 | 7.0 % | 8.2 % | |
| T-Stk | 293 F | 479 F | |
| T-Air | 72.4 F | 75.9 F | |
| EA | 61.3 % | 38.7 % | |
| CO (15) | 12 ppm | 0 ppm | |
| NO | 34.6 ppm | 72 ppm | |
| NO2 | 10.1 ppm | 1.0 ppm | |
| NOX | 44.7 ppm | 73 ppm | |
| SO2 | / | / | |
| NO (15) | 16 ppm | 29 ppm | |
| NOX (15) | 21 ppm | 29 ppm | |
| SO2 (15 | / | / | |
| K lbs/hour | 20 | 30 | |

Signature: Dave Smith

Boiler #4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:35:18 AM
Date: 01/30/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.3 % |
| CO | 0 ppm |
| Eff | 78.7 % |
| $CO_2$ | 8.2 % |
| T-Stk | 479 °F |
| T-Air | 75.9 °F |
| EA | 38.7 % |
| CO(15) | 0 ppm |
| NO | 72 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 73 ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.78 LPM |

Comments:

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 02/06/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 08:07:13 | | |
| Recorded Test | | 08:46:13 | | |
| O2 | | 13.6% | | |
| CO | | 2ppm | | |
| Eff | | 81.0% | | |
| CO2 | | 4.1% | | |
| T-Stk | | 272°F | | |
| T-Air | | 90.4°F | | |
| EA | | 166.3% | | |
| CO (15) | | 1ppm | | |
| NO | | 17.9ppm | | |
| NO2 | | 2.5ppm | | |
| NOX | | 20.4ppm | | |
| SO2 | | | | |
| NO (15) | | 14ppm | | |
| NOX (15) | | 17ppm | | |
| SO2 (15 | | | | |
| Mega Watts | | 9.5 | | |
| KSCF/hr | | 48 | | |

**Signature:** Darin Butts

| Date: 02/06/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 08:01:19 | | |
| Recorded Test | | 07:57:19 | | |
| O2 | | 5.6% | | |
| CO | | 0ppm | | |
| Eff | | 78.7% | | |
| CO2 | | 8.7% | | |
| T-Stk | | 507°F | | |
| T-Air | | 88.3°F | | |
| EA | | 32.2% | | |
| CO (15) | | 0ppm | | |
| NO | | 95ppm | | |
| NO2 | | 0.0ppm | | |
| NOX | | 95ppm | | |
| SO2 | | | | |
| NO (15) | | 36ppm | | |
| NOX (15) | | 36ppm | | |
| SO2 (15 | | | | |
| lbs per hour | | 40 | | |

**Signature:** Darin Butts

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:07:13 AM
Date: 02/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.6 % |
| CO | 2 ppm |
| Eff | 81.0 % |
| $CO_2$ | 4.1 % |
| T-Stk | 272 °F |
| T-Air | 90.4 °F |
| EA | 166.3 % |
| CO(15) | 1 ppm |
| NO | 17.9 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 20.4 ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.78 LPM |

Comments: GT DB # 2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:01:19 AM
Date: 02/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.6 % |
| CO | 0 ppm |
| Eff | 78.7 % |
| $CO_2$ | 8.7 % |
| T-Stk | 507 °F |
| T-Air | 88.3 °F |
| EA | 32.2 % |
| CO(15) | 0 ppm |
| NO | 95 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 95 ppm |
| NO(15) | 36 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.74 LPM |

Comments: Boner #4

CP 63326

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 2/13/2023 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

Signature: _____

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | 0939 | 0941 |
| Recorded Test | | | 0942 | 0944 |
| O2 | | | 3.5% | 5.6 % |
| CO | | | 17 PPM | 0 PPM |
| Eff | | | 81.7 % | 76.4 % |
| CO2 | | | 9.8 % | 8.6 % |
| T-Stk | | | 419 °F | 569 °F |
| T-Air | | | 70.1 °F | 72.1 °F |
| EA | | | 18.1 % | 37.8 % |
| CO (15) | | | 6 PPM | 0 PPM |
| NO | | | 55 PPM | 98 PPM |
| NO2 | | | 3.6 PPM | 1.5 PPM |
| NOX | | | 59 PPM | 99 PPM |
| SO2 | | | — | — |
| NO (15) | | | 19 PPM | 38 PPM |
| NOX (15) | | | 20 PPM | 38 PPM |
| SO2 (15 | | | — | — |
| K lbs/hour | | | 74 | 36 |

Signature: Kenneth Wil

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP 63326

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:44:32 AM
Date: 02/13/23

BLR #1

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.6 % |
| CO | 0 ppm |
| Eff | 76.4 % |
| $CO_2$ | 8.6 % |
| T-Stk | 569 °F |
| T-Air | 72.1 °F |
| EA | 32.8 % |
| CO(15) | 0 ppm |
| NO | 98 ppm |
| $NO_2$ | 1.5 ppm |
| NOx | 99 ppm |
| NO(15) | 38 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 38 ppm |
| Flow | 0.78 LPM |

Comments:

36

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:42:55 AM
Date: 02/13/23

BLR #2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 17 ppm |
| Eff | 81.7 % |
| $CO_2$ | 9.8 % |
| T-Stk | 419 °F |
| T-Air | 70.1 °F |
| EA | 18.1 % |
| CO(15) | 6 ppm |
| NO | 55 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 59 ppm |
| NO(15) | 19 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.77 LPM |

Comments:

74

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 2/20/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 08:25 | | |
| Recorded Test | | 08:36 | | |
| O2 | | 13.4% | | |
| CO | | 6ppm | | |
| Eff | | 80.2% | | |
| CO2 | | 4.3% | | |
| T-Stk | | 273° | | |
| T-Air | | 71.9° | | |
| EA | | 157.6% | | |
| CO (15) | | 5ppm | | |
| NO | | 24.8ppm | | |
| NO2 | | 3.9ppm | | |
| NOX | | 28.7ppm | | |
| SO2 | | | | |
| NO (15) | | 19ppm | | |
| NOX (15) | | 22ppm | | |
| SO2 (15 | | | | |
| Mega Watts | | 9.5 | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: 2/20/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | 08:44 |
| Recorded Test | | | | 08:59 |
| O2 | | | | 6.3% |
| CO | | | | 0ppm |
| Eff | | | | 78.9% |
| CO2 | | | | 8.2% |
| T-Stk | | | | 472° |
| T-Air | | | | 75.5° |
| EA | | | | 38.7% |
| CO (15) | | | | 0ppm |
| NO | | | | 71ppm |
| NO2 | | | | 0.0ppm |
| NOX | | | | 71ppm |
| SO2 | | | | |
| NO (15) | | | | 29ppm |
| NOX (15) | | | | 29ppm |
| SO2 (15 | | | | |
| K lbs/hour | | | | 29.9 |

**Signature:** M. Jackson

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:36:02 AM
Date: 02/20/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 6 ppm |
| Eff | 80.2 % |
| $CO_2$ | 4.3 % |
| T-Stk | 273 °F |
| T-Air | 71.9 °F |
| EA | 157.6 % |
| CO(15) | 5 ppm |
| NO | 24.8 ppm |
| $NO_2$ | 3.9 ppm |
| NOx | 28.7 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

Comments:

GT #2
w/ DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:59:53 AM
Date: 02/20/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.3 % |
| CO | 0 ppm |
| Eff | 78.9 % |
| $CO_2$ | 8.2 % |
| T-Stk | 472 °F |
| T-Air | 75.5 °F |
| EA | 38.7 % |
| CO(15) | 0 ppm |
| NO | 71 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 71 ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.76 LPM |

Comments:

#4 Boiler

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 2/27/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 8:46 AM | | |
| Recorded Test | | | | |
| O2 | | 7.6% | | |
| CO | | 7 PPM | | |
| Eff | | 83.5% | | |
| CO2 | | 7.5% | | |
| T-Stk | | 300°F | | |
| T-Air | | 74.5°F | | |
| EA | | 51.1% | | |
| CO (15) | | 3 PPM | | |
| NO | | 45.1 PPM | | |
| NO2 | | 7.0 PPM | | |
| NOX | | 52 PPM | | |
| SO2 | | | | |
| NO (15) | | 20 PPM | | |
| NOX (15) | | 23 PPM | | |
| SO2 (15 | | | | |
| Mega Watts | | 9.6 MW | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 9:04AM | 9:14 AM | |
| Recorded Test | | | | |
| O2 | | 5.5% | 14.8% | |
| CO | | 0 PPM | 3 PPM | |
| Eff | | 78.4% | 76.6% | |
| CO2 | | 8.7% | 3.4% | |
| T-Stk | | 531°F | 311°F | |
| T-Air | | 101.0°F | 87.4°F | |
| EA | | 31.5% | 216.3% | |
| CO (15) | | 0PPM | 3 PPM | |
| NO | | 86 PPM | 19 PPM | |
| NO2 | | 1.1 PPM | 4.5PPM | |
| NOX | | 87 PPM | 23.5PPM | |
| SO2 | | | | |
| NO (15) | | 33PPM | 18 PPM | |
| NOX (15) | | 33PPM | 23PPM | |
| SO2 (15 | | | | |
| K lbs/hour | | 34 KPPH | 20 KPPH | |

**Signature:** _____

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:14:13 AM
Date: 02/27/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.8 % |
| CO | 3 ppm |
| Eff | 76.6 % |
| $CO_2$ | 3.4 % |
| T-Stk | 311 °F |
| T-Air | 87.4 °F |
| EA | 216.3 % |
| CO(15) | 3 ppm |
| NO | 19.0 ppm |
| $NO_2$ | 4.5 ppm |
| NOx | 23.5 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.80 LPM |

Comments:

BLR 2 20KPPH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:46:13 AM
Date: 02/27/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.6 % |
| CO | 7 ppm |
| Eff | 83.5 % |
| $CO_2$ | 7.5 % |
| T-Stk | 300 °F |
| T-Air | 74.5 °F |
| EA | 51.1 % |
| CO(15) | 3 ppm |
| NO | 45.1 ppm |
| $NO_2$ | 7.0 ppm |
| NOx | 52 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.79 LPM |

Comments:

GT #2 9.6 MW

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:04:57 AM
Date: 02/27/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.5 % |
| CO | 0 ppm |
| Eff | 78.4 % |
| $CO_2$ | 8.7 % |
| T-Stk | 531 °F |
| T-Air | 101.0 °F |
| EA | 31.5 % |
| CO(15) | 0 ppm |
| NO | 86 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 87 ppm |
| NO(15) | 33 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 33 ppm |
| Flow | 0.77 LPM |

Comments:

BLR # 4
34 KPPH

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/6/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 07:35 | | |
| Recorded Test | | 07:50 | | |
| O2 | | 14 % | | |
| CO | | 4 ppm | | |
| Eff | | 78.4 % | | |
| CO2 | | 3.9 % | | |
| T-Stk | | 290°F | | |
| T-Air | | 73.2°F | | |
| EA | | 182.5 % | | |
| CO (15) | | 3 ppm | | |
| NO | | 22.9 ppm | | |
| NO2 | | 3.6 ppm | | |
| NOX | | 26.5 ppm | | |
| SO2 | | | | |
| NO (15) | | 20 ppm | | |
| NOX (15) | | 23 ppm | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

Signature: _____

Mobile B/R

| Date: 3/6/23 | BLR 2 | ~~BLR 4~~ | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | 07:15 |
| Recorded Test | | 08:05 | | 07:27 |
| O2 | | 6.8 % | | 5.8 % |
| CO | | 0 ppm | | 0 ppm |
| Eff | | 80.2 % | | 77.7 % |
| CO2 | | 7.9 % | | 8.5 % |
| T-Stk | | 415°F | | 531° F |
| T-Air | | 71.6°F | | 83.9°F |
| EA | | 43.3 % | | 34.1 % |
| CO (15) | | 0 ppm | | 0 ppm |
| NO | | 31.6 ppm | | 79 ppm |
| NO2 | | 0 ppm | | 0 ppm |
| NOX | | 31.6 ppm | | 79 ppm |
| SO2 | | | | |
| NO (15) | | 13 ppm | | 31 ppm |
| NOX (15) | | 13 ppm | | 31 ppm |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

Signature: N. Jackson

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

Q64122

## EMISSION TEST COLLEGE

| Date: 3/13/23 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | 10:10 |
| Recorded Test | | 1015 |
| O2 | | 14.0% |
| CO | | 4ppm |
| Eff | | 77.9% |
| CO2 | | 3.9% |
| T-Stk | | 295°F |
| T-Air | | 69.8°F |
| EA | | 181.9% |
| CO (15) | | 4ppm |
| NO | | 21.6 ppm |
| NO2 | | 4.4ppm |
| NOX | | 26.0 ppm |
| SO2 | | XX |
| NO (15) | | 19 ppm |
| NOX (15) | | 22 ppm |
| SO2 (15 | | XX |
| Mega Watts | | 10.0 |
| KSCF/hour | | |

Signature:

BACHARACH GT2 DB

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:15:16 AM
Date: 03/13/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 4 ppm |
| Eff | 77.9 % |
| $CO_2$ | 3.9 % |
| T-Stk | 295 °F |
| T-Air | 69.8 °F |
| EA | 181.9 % |
| CO(15) | 4 ppm |
| NO | 21.6 ppm |
| $NO_2$ | 4.4 ppm |
| NOx | 26.0 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.77 LPM |

Comments:

Boiler: RECORD TIME PROBE IS INSERTED (Start), W

GT: RECORD TIME PROBE IS INSERTED (Start), WA

WHEN FINISHED TESTING AT

| Date: 3/13/23 | Mob BLR 3 | BLR 4 |
|---|---|---|
| Start Test | 0846 | 0904 |
| Recorded Test | 0902 | 0920 |
| O2 | 8.1% | 5.5% |
| CO | 1 ppm | 0 ppm |
| Eff | 80.1% | 77.8% |
| CO2 | 7.3% | 8.7% |
| T-Stk | 393°F | 542°F |
| T-Air | 69.9°F | 92.6°F |
| EA | 55.8% | 32.1% |
| CO (15) | 0 ppm | 0 |
| NO | 28.5 ppm | 85 |
| NO2 | 0 ppm | 1.2 |
| NOX | 28.5 ppm | 86 |
| SO2 | XX | XX |
| NO (15) | 13 ppm | 33 |
| NOX (15) | 13 ppm | 33 |
| SO2 (15 | XX | XX |
| K lbs/hour | 15K | 41K |

Signature:

BACHARACH Mobile BLR

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:02:12 AM
Date: 03/13/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.1 % |
| CO | 1 ppm |
| Eff | 80.1 % |
| $CO_2$ | 7.3 % |
| T-Stk | 393 °F |
| T-Air | 69.9 °F |
| EA | 55.8 % |
| CO(15) | 0 ppm |
| NO | 28.5 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 28.5 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.78 LPM |

Comments:

BACHARACH BLR4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:20:46 AM
Date: 03/13/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.5 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 8.7 % |
| T-Stk | 542 °F |
| T-Air | 92.6 °F |
| EA | 32.1 % |
| CO(15) | 0 ppm |
| NO | 85 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 86 ppm |
| NO(15) | 33 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 33 ppm |
| Flow | 0.76 LPM |

nts:

CP 64340

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/20/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0835 | | |
| Recorded Test | ~~0838~~ | 0838 | | |
| O2 | | 14.6 % | | |
| CO | | 7 PPM | | |
| Eff | | 76.3 % | | |
| CO2 | | 3.5 % | | |
| T-Stk | | 296 °F | | |
| T-Air | | 61.3 °F | | |
| EA | | 207 % | | |
| CO (15) | | 7 PPM | | |
| NO | | 19 PPM | | |
| NO2 | | 5.1 PPM | | |
| NOX | | 24.1 PPM | | |
| SO2 | | — | | |
| NO (15) | | 18 PPM | | |
| NOX (15) | | 23 PPM | | |
| SO2 (15 | | — | | |
| Mega Watts | | 10.5 | | |
| KSCF/hour | | 47 | | |

Signature: Ken Williams

| Date: 3/20/23 | ~~BLR 3~~ MOBILE | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0850 | 0841 | | |
| Recorded Test | 0854 | 0846 | | |
| O2 | 7.4 % | 5.9 % | | |
| CO | 1 PPM | 0 PPM | | |
| Eff | 79.5 % | 77.2 % | | |
| CO2 | 7.6 % | 8.5 % | | |
| T-Stk | 416 °F | 524 °F | | |
| T-Air | 64 °F | 60.1 °F | | |
| EA | 48.8 % | 34.7 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 28.7 PPM | 93 PPM | | |
| NO2 | 1.1 PPM | 1.6 PPM | | |
| NOX | 29.8 PPM | 94 PPM | | |
| SO2 | — | — | | |
| NO (15) | 13 PPM | 36 PPM | | |
| NOX (15) | 13 PPM | 37 PPM | | |
| SO2 (15 | — | — | | |
| K lbs/hour | 30 | 36 | | |

Signature: Ken Will

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

GT: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP64340

GT2 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:38:43 AM
Date: 03/20/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 14.6 % |
| CO | 7 ppm |
| Eff | 76.3 % |
| $CO_2$ | 3.5 % |
| T-Stk | 296 °F |
| T-Air | 61.3 °F |
| EA | 207.0 % |
| CO(15) | 7 ppm |
| NO | 19.0 ppm |
| $NO_2$ | 5.1 ppm |
| NOx | 24.1 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.80 LPM |

Comments:

MW - 10.5
KSCF - 47

BUR4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:46:18 AM
Date: 03/20/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 5.9 % |
| CO | 0 ppm |
| Eff | 77.2 % |
| $CO_2$ | 8.5 % |
| T-Stk | 524 °F |
| T-Air | 60.1 °F |
| EA | 34.7 % |
| CO(15) | 0 ppm |
| NO | 93 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 94 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 37 ppm |
| Flow | 0.80 LPM |

Comments:

11lbs-36

MOBILE

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:54:56 AM
Date: 03/20/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.4 % |
| CO | 1 ppm |
| Eff | 79.5 % |
| $CO_2$ | 7.6 % |
| T-Stk | 416 °F |
| T-Air | 64.0 °F |
| EA | 48.8 % |
| CO(15) | 0 ppm |
| NO | 28.7 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 29.8 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.80 LPM |

Comments:

11lbs-30

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/27/23 | GT-1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | ~~11:35~~ | 11:35 |
| O2 | | | | 13.6 % |
| CO | | | | 4 ppm |
| Eff | | | | 79.7 % |
| CO2 | | | | 4.1 % |
| T-Stk | | | | 276 °F |
| T-Air | | | | 70.4 °F |
| EA | | | | 165.4 % |
| CO (15) | | | | 3 PPM |
| NO | | | | 23.1 ppm |
| NO2 | | | | 3.6 ppm |
| NOX | | | | 26.6 ppm |
| SO2 | | | | |
| NO (15) | | | | 19 ppm |
| NOX (15) | | | | 21 ppm |
| SO2 (15 | | | | |
| Mega Watts | | 9.5 | | |
| KSCF/hour | | ~~9.5~~ 52 | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:35:23 AM
Date: 03/27/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.6 % |
| CO | 4 ppm |
| Eff | 79.7 % |
| $CO_2$ | 4.1 % |
| T-Stk | 276 °F |
| T-Air | 70.4 °F |
| EA | 165.4 % |
| CO(15) | 3 ppm |
| NO | 23.1 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 26.6 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.79 LPM |

Comments:
GT#2 w/DB

Mobile

| Date: | BLR 2 | BLR 4 | ~~BLR 2~~ | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | 11:52 | |
| O2 | | | 7.5% | |
| CO | | | 0 ppm | |
| Eff | | | 80.5% | |
| CO2 | | | 7.6% | |
| T-Stk | | | 399°F | |
| T-Air | | | 76.1 ~~49.4~~ | |
| EA | | | 49.4% | |
| CO (15) | | | 0 ppm | |
| NO | | | 26.6 ppm | |
| NO2 | | | 0.0 ppm | |
| NOX | | | 26.6 ppm | |
| SO2 | | | | |
| NO (15) | | | 12 ppm | |
| NOX (15) | | | 12 ppm | |
| SO2 (15 | | | | |
| K lbs/hour | | | 20 | |

**Signature:** N. Jackson

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:52:58 AM
Date: 03/27/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 7.5 % |
| CO | 0 ppm |
| Eff | 80.5 % |
| $CO_2$ | 7.6 % |
| T-Stk | 399 °F |
| T-Air | 76.1 °F |
| EA | 49.4 % |
| CO(15) | 0 ppm |
| NO | 26.6 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 26.6 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.79 LPM |

Comments:
Mobile BLR

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

July 6, 2023

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of April 1, 2023, through June 30, 2023.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Mark Alexander, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility April 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 507.90 | 0.00 | 61055.86 | 0.00 | | 532,350,000 | 0 | 557,610 | 0 | 0.0305 | 0.0000 | 0.0305 | 3.6939 | 0.0000 | 3.6939 | 0.0916 | 0.0000 | 0.0916 | 0.1832 | 0.0000 | 0.1832 | 0.1496 | 0.0000 | 0.1496 | 0.1496 | 0.0000 | 0.1496 |
| Turbine 2 | 325.00 | 0.00 | 43552.97 | 0.00 | | 595,970,000 | 0 | 624,249 | 0 | 0.0436 | 0.0000 | 0.0436 | 2.8092 | 0.0000 | 2.8092 | 0.3049 | 0.0000 | 0.3049 | 0.1307 | 0.0000 | 0.1307 | 0.0784 | 0.0000 | 0.0784 | 0.0784 | 0.0000 | 0.0784 |
| Duct Burner 1 | 186.50 | | 7730.18 | | | 72,660,000 | | 76,108 | | 0.0208 | | 0.0208 | 0.0502 | | 0.0502 | 0.0387 | | 0.0387 | 0.0023 | | 0.0023 | 0.0076 | | 0.0076 | 0.0076 | | 0.0076 |
| Duct Burner 2 | 346.00 | | 11040.12 | | | 94,360,000 | | 98,837 | | 0.0298 | | 0.0298 | 0.0718 | | 0.0718 | 0.0552 | | 0.0552 | 0.0032 | | 0.0032 | 0.0108 | | 0.0108 | 0.0108 | | 0.0108 |
| Boiler 2 | 249.30 | 10.60 | 1909.50 | 671.73 | | | | | | 0.0002 | 0.0005 | 0.0007 | 0.0970 | 0.0410 | 0.1380 | 0.0005 | 0.0074 | 0.0079 | 0.0006 | 0.0148 | 0.0154 | 0.0086 | 0.0263 | 0.0348 | 0.0086 | 0.0263 | 0.0348 |
| Boiler 4 | 600.10 | 5.50 | 2167.17 | 235.48 | | | | | | 0.0005 | 0.0002 | 0.0006 | 0.1110 | 0.0154 | 0.1264 | 0.0023 | 0.0036 | 0.0059 | 0.0006 | 0.0051 | 0.0057 | 0.0065 | 0.0081 | 0.0147 | 0.0065 | 0.0081 | 0.0147 |
| Emerg. Gen. | | 0.50 | | 6.59 | 1.5 | | | | | | 0.0003 | 0.0003 | | 0.0105 | 0.0105 | | 0.0028 | 0.0028 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 101.20 | 4.10 | 964.70 | 1556.00 | | | | | | 0.0019 | 0.0004 | 0.0024 | 0.0174 | 0.0214 | 0.0387 | 0.0181 | 0.0040 | 0.0221 | 0.0003 | 0.0002 | 0.0005 | 0.0051 | 0.0104 | 0.0155 | 0.0051 | 0.0104 | 0.0155 |
| Emissions Total | | | | | | | | | | 0.1273 | 0.0014 | 0.1287 | 6.8505 | 0.0882 | 6.9387 | 0.5113 | 0.0178 | 0.5290 | 0.3208 | 0.0201 | 0.3409 | 0.2666 | 0.0450 | 0.3116 | 0.2666 | 0.0451 | 0.3117 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.58 | 120.46 | 7.28 | 3.98 | 6.12 | 6.12 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility May 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 689.30 | 0.00 | 85691.88 | 0.00 | | 541,130,000 | 0 | 566,807 | 0 | 0.0428 | 0.0000 | 0.0428 | 5.1844 | 0.0000 | 5.1844 | 0.1285 | 0.0000 | 0.1285 | 0.2571 | 0.0000 | 0.2571 | 0.2099 | 0.0000 | 0.2099 | 0.2099 | 0.0000 | 0.2099 |
| Turbine 2 | 610.50 | 0.00 | 55671.97 | 0.00 | | 627,290,000 | 0 | 657,055 | 0 | 0.0557 | 0.0000 | 0.0557 | 3.5908 | 0.0000 | 3.5908 | 0.3897 | 0.0000 | 0.3897 | 0.1670 | 0.0000 | 0.1670 | 0.1002 | 0.0000 | 0.1002 | 0.1002 | 0.0000 | 0.1002 |
| Duct Burner 1 | 510.10 | | 9741.29 | | | 64,370,000 | | 67,424 | | 0.0263 | | 0.0263 | 0.0633 | | 0.0633 | 0.0487 | | 0.0487 | 0.0029 | | 0.0029 | 0.0096 | | 0.0096 | 0.0096 | | 0.0096 |
| Duct Burner 2 | 101.70 | | 2011.10 | | | 85,470,000 | | 89,526 | | 0.0054 | | 0.0054 | 0.0131 | | 0.0131 | 0.0101 | | 0.0101 | 0.0006 | | 0.0006 | 0.0020 | | 0.0020 | 0.0020 | | 0.0020 |
| Boiler 2 | 73.80 | 5.20 | 52372.50 | 537.11 | | | | | | 0.0062 | 0.0004 | 0.0066 | 2.6618 | 0.0328 | 2.6945 | 0.0145 | 0.0059 | 0.0204 | 0.0154 | 0.0119 | 0.0273 | 0.2351 | 0.0210 | 0.2561 | 0.2351 | 0.0210 | 0.2561 |
| Boiler 4 | 102.00 | 7.70 | 3404.21 | 178.67 | | | | | | 0.0007 | 0.0001 | 0.0008 | 0.1744 | 0.0117 | 0.1861 | 0.0037 | 0.0027 | 0.0064 | 0.0010 | 0.0038 | 0.0048 | 0.0103 | 0.0062 | 0.0164 | 0.0103 | 0.0062 | 0.0164 |
| Emerg. Gen. | | 0.50 | | 6.587 | 2.0 | | | | | | 0.0003 | 0.0003 | | 0.0105 | 0.0105 | | 0.0028 | 0.0028 | | 0.0000 | 0.0000 | | 0.0002 | 0.0002 | | 0.0002 | 0.0002 |
| Mobile Boiler | 0.40 | 0.00 | 10.47 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0002 | 0.0002 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0001 |
| Emissions Total | | | | | | | | | | 0.1372 | 0.0008 | 0.1380 | 11.6880 | 0.0550 | 11.7429 | 0.5953 | 0.0114 | 0.6068 | 0.4440 | 0.0157 | 0.4597 | 0.5671 | 0.0274 | 0.5945 | 0.5671 | 0.0274 | 0.5946 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.57 | 125.17 | 7.45 | 4.12 | 6.39 | 6.39 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility June 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 704.30 | 0.00 | 69225.97 | 0.00 | | 523,540,000 | 0 | 548,382 | 0 | 0.0346 | 0.0000 | 0.0346 | 4.1882 | 0.0000 | 4.1882 | 0.1038 | 0.0000 | 0.1038 | 0.2077 | 0.0000 | 0.2077 | 0.1696 | 0.0000 | 0.1696 | 0.1696 | 0.0000 | 0.1696 |
| Turbine 2 | 316.30 | 0.00 | 36702.65 | 0.00 | | 576,100,000 | 0 | 603,436 | 0 | 0.0367 | 0.0000 | 0.0367 | 2.3673 | 0.0000 | 2.3673 | 0.2569 | 0.0000 | 0.2569 | 0.1101 | 0.0000 | 0.1101 | 0.0661 | 0.0000 | 0.0661 | 0.0661 | 0.0000 | 0.0661 |
| Duct Burner 1 | 537.10 | | 16979.16 | | | 68,300,000 | | 71,541 | | 0.0458 | | 0.0458 | 0.1104 | | 0.1104 | 0.0849 | | 0.0849 | 0.0050 | | 0.0050 | 0.0167 | | 0.0167 | 0.0167 | | 0.0167 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 84,510,000 | | 88,520 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 405.80 | 4.30 | 1790.09 | 421.29 | | | | | | 0.0002 | 0.0003 | 0.0005 | 0.0910 | 0.0257 | 0.1167 | 0.0005 | 0.0046 | 0.0051 | 0.0005 | 0.0093 | 0.0098 | 0.0080 | 0.0165 | 0.0245 | 0.0080 | 0.0165 | 0.0245 |
| Boiler 4 | 0.00 | 0.00 | 612.76 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0314 | 0.0000 | 0.0314 | 0.0007 | 0.0000 | 0.0007 | 0.0002 | 0.0000 | 0.0002 | 0.0018 | 0.0000 | 0.0018 | 0.0018 | 0.0000 | 0.0018 |
| Emerg. Gen. | | 0.00 | | 0.000 | 2.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 14.40 | 0.00 | 173.88 | 0.00 | | | | | | 0.0003 | 0.0000 | 0.0003 | 0.0031 | 0.0000 | 0.0031 | 0.0033 | 0.0000 | 0.0033 | 0.0001 | 0.0000 | 0.0001 | 0.0009 | 0.0000 | 0.0009 | 0.0009 | 0.0000 | 0.0009 |
| Emissions Total | | | | | | | | | | 0.1178 | 0.0003 | 0.1181 | 6.7914 | 0.0257 | 6.8171 | 0.4501 | 0.0046 | 0.4547 | 0.3235 | 0.0093 | 0.3328 | 0.2631 | 0.0165 | 0.2796 | 0.2631 | 0.0165 | 0.2796 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.52 | 120.57 | 7.07 | 3.92 | 6.26 | 6.26 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 04/03/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 06:51:05 AM | | |
| Recorded Test | | 06:57:05 AM | | |
| O2 | | 14.0% | | |
| CO | | 3ppm | | |
| Eff | | 74.7% | | |
| CO2 | | 3.9% | | |
| T-Stk | | 365 °F | | |
| T-Air | | 80.4 °F | | |
| EA | | 179.5 % | | |
| CO (15) | | 3ppm | | |
| NO | | 22.7ppm | | |
| NO2 | | 3.5ppm | | |
| NOX | | 26.3ppm | | |
| SO2 | | - | | |
| NO (15) | | 19ppm | | |
| NOX (15) | | 22ppm | | |
| SO2 (15 | | - | | |
| Mega Watts | | 10.0 | | |
| KSCF/hour | | 44 | | |

**Signature:**

MOBILE

| Date: 04/03/23 | ~~BLR 2~~ | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 07:45:51 AM | 06:20:08 AM | | |
| Recorded Test | 08:07:51 AM | 06:36:08 AM | | |
| O2 | 8.1% | 5.9% | | |
| CO | 0ppm | 0ppm | | |
| Eff | 80.3% | 78.1% | | |
| CO2 | 7.2% | 8.5% | | |
| T-Stk | 397 °F | 515 °F | | |
| T-Air | 82.6 °F | 81.9 °F | | |
| EA | 56.1% | 34.8% | | |
| CO (15) | 0 ppm | 0 ppm | | |
| NO | 27.5ppm | 78ppm | | |
| NO2 | 0.0 ppm | 0.0 ppm | | |
| NOX | 27.5 ppm | 78 ppm | | |
| SO2 | - | - | | |
| NO (15) | 13ppm | 31 ppm | | |
| NOX (15) | 13 ppm | 31 ppm | | |
| SO2 (15 | - | - | | |
| K lbs/hour | 23 y. | 25 KPPH | | |

**Signature:** Dan Hamilton

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

4/3/23

4
#Boiler

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:36:08 AM
Date: 04/03/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.9 % |
| CO | 0 ppm |
| Eff | 78.1 % |
| $CO_2$ | 8.5 % |
| T-Stk | 515 °F |
| T-Air | 81.9 °F |
| EA | 34.8 % |
| CO(15) | 0 ppm |
| NO | 78 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 78 ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 31 ppm |
| Flow | 0.78 LPM |

Mobile Boiler

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:07:51 AM
Date: 04/03/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.1 % |
| CO | 0 ppm |
| Eff | 80.3 % |
| $CO_2$ | 7.2 % |
| T-Stk | 397 °F |
| T-Air | 82.6 °F |
| EA | 56.1 % |
| CO(15) | 0 ppm |
| NO | 27.5 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 27.5 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.80 LPM |

Comments:

GT #2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:57:05 AM
Date: 04/03/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 3 ppm |
| Eff | 74.7 % |
| $CO_2$ | 3.9 % |
| T-Stk | 365 °F |
| T-Air | 80.4 °F |
| EA | 179.5 % |
| CO(15) | 3 ppm |
| NO | 22.7 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 26.3 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

Comments:

CP64896

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/10/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | 0931 | 0926 | |
| Recorded Test | | 0934 | 0929 | |
| O2 | | 15.9 % | 15.9 % | |
| CO | | 0 PPM | 0 PPM | |
| Eff | | 94.1 % | 99.7 % | |
| CO2 | | 2.8 % | 2.8 % | |
| T-Stk | | 87 °F | 64 °F | |
| T-Air | | 76.6 °F | 64.7 °F | |
| EA | | 250 % | 250 % | |
| CO (15) | | 0 PPM | 0 PPM | |
| NO | | 13.2 PPM | 13.4 PPM | |
| NO2 | | 4.1 PPM | 2.0 PPM | |
| NOX | | 17.2 PPM | 15.5 PPM | |
| SO2 | | — | — | |
| NO (15) | | 15 PPM | 16 PPM | |
| NOX (15) | | 20 PPM | 18 PPM | |
| SO2 (15 | | — | — | |
| Mega Watts | | 9.5 | 10.5 | |
| KSCF/hour | | 47 | | |

**Signature:** Ken Will

| Date: 4/10/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | 0937 | | |
| Recorded Test | | 0940 | | |
| O2 | | 8.8 % | | |
| CO | | 0 PPM | | |
| Eff | | 76.4 % | | |
| CO2 | | 6.8 % | | |
| T-Stk | | 491 °F | | |
| T-Air | | 78.3 °F | | |
| EA | | 64.4 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 45.4 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | 45.4 PPM | | |
| SO2 | | — | | |
| NO (15) | | 22 PPM | | |
| NOX (15) | | 22 PPM | | |
| SO2 (15 | | — | | |
| K lbs/hour | | 76 | | |

**Signature:** Ken Will

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

CP64896

GT1

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:29:08
Date: 04/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 99.7 % |
| $CO_2$ | 2.8 % |
| T-Stk | 64 °F |
| T-Air | 64.7 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 13.4 ppm |
| $NO_2$ | 2.0 ppm |
| NOx | 15.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.81 LPM |

Comments:

10.5

GT2 DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:34:54
Date: 04/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 94.1 % |
| $CO_2$ | 2.8 % |
| T-Stk | 87 °F |
| T-Air | 71.6 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 13.2 ppm |
| $NO_2$ | 4.1 ppm |
| NOx | 17.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.81 LPM |

Comments:

MW - 9.5
K - 47

BLR 4

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:40:09
Date: 04/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.8 % |
| CO | 0 ppm |
| Eff | 76.4 % |
| $CO_2$ | 6.8 % |
| T-Stk | 491 °F |
| T-Air | 78.3 °F |
| EA | 64.4 % |
| CO(0) | 0 ppm |
| NO | 45.4 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 45.4 ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

Comments:

26

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 4/17/2023 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | 14:21 | |
| O2 | | | 15.9% | |
| CO | | | 0 PPM | |
| Eff | | | 99.8% | |
| CO2 | | | 2.8% | |
| T-Stk | | | 73 °F | |
| T-Air | | | 72.5 °F | |
| EA | | | 250.0% | |
| CO (15) | | | 0 | |
| NO | | | 13.6 PPM | |
| NO2 | | | 2.5 PPM | |
| NOX | | | 16.1 PPM | |
| SO2 | | | — | |
| NO (15) | | | 16 PPM | |
| NOX (15) | | | 19 PPM | |
| SO2 (15 | | | — | |
| Mega Watts | | | 10 MW | |
| KSCF/hour | | | | |

**Signature:**

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC. GT4
PCA 400
SN: 18041087

Time: 14:21:35
Date: 04/17/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 99.8 % |
| $CO_2$ | 2.8 % |
| T-Stk | 73 °F |
| T-Air | 72.5 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 13.6 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 16.1 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.80 LPM |

Comments: 10 MW

S AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

CP65289

# EMISSION TEST COLL

| Date: 4/24/24 | GT 1 DB | GT 2 D |
|---|---|---|
| Start Test | 1538 | |
| Recorded Test | 1545 | |
| O2 | 13.5% | |
| CO | 1 ppm | |
| Eff | 79.8% | |
| CO2 | 4.2% | |
| T-Stk | 294°F | |
| T-Air | 86.2°F | |
| EA | 162.1% | |
| CO (15) | 1 ppm | |
| NO | 18.9 ppm | |
| NO2 | 3.3 ppm | |
| NOX | 22.2 ppm | |
| SO2 | XX | |
| NO (15) | 15 ppm | |
| NOX (15) | 18 ppm | |
| SO2 (15 | XX | |
| Mega Watts | 9.8 MW | |
| KSCF/hour | 46 KSCF | |

Signature:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

GT1
DB

Time: 02:45:15 PM
Date: 04/24/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.5 % |
| CO | 1 ppm |
| Eff | 79.8 % |
| $CO_2$ | 4.2 % |
| T-Stk | 294 °F |
| T-Air | 86.2 °F |
| EA | 162.1 % |
| CO(15) | 1 ppm |
| NO | 18.9 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 22.2 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.79 LPM |

Comments:

9.8 MW 46 KSCF

Boiler: RECORD TIME PROBE IS INSERTED (Start)

GT: RECORD TIME PROBE IS INSERTED (Start), W

WHEN FINISHED TESTING A

| Date: 4/24/24 | BLR 2 | BLR |
|---|---|---|
| Start Test | 1520 | |
| Recorded Test | 1536 | |
| O2 | 11.1% | |
| CO | 0 ppm | |
| Eff | 76.1% | |
| CO2 | 5.5% | |
| T-Stk | 441°F | |
| T-Air | 89.6°F | |
| EA | 101.2% | |
| CO (15) | 0 ppm | |
| NO | 61 ppm | |
| NO2 | 2.8 ppm | |
| NOX | 64 ppm | |
| SO2 | XX | |
| NO (15) | 37 ppm | |
| NOX (15) | 39 ppm | |
| SO2 (15 | XX | |
| K lbs/hour | 19 KPPH | |

Signature:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

BLR4

Time: 02:36:19 PM
Date: 04/24/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 11.1 % |
| CO | 0 ppm |
| Eff | 76.1 % |
| $CO_2$ | 5.5 % |
| T-Stk | 441 °F |
| T-Air | 89.6 °F |
| EA | 101.2 % |
| CO(15) | 0 ppm |
| NO | 61 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 64 ppm |
| NO(15) | 37 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 39 ppm |
| Flow | 0.78 LPM |

Comments:

19 KPPH

CP 65419

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/1/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1456 | | | |
| Recorded Test | 1459 | | | |
| O2 | 13.1 % | | | |
| CO | 3 PPM | | | |
| Eff | 80.9 % | | | |
| CO2 | 4.4 % | | | |
| T-Stk | 272 °F | | | |
| T-Air | 77.9 °F | | | |
| EA | 150.7 % | | | |
| CO (15) | 3 PPM | | | |
| NO | 23.6 PPM | | | |
| NO2 | 3.3 PPM | | | |
| NOX | 26.9 PPM | | | |
| SO2 | — | | | |
| NO (15) | 18 PPM | | | |
| NOX (15) | 20 PPM | | | |
| SO2 (15 | — | | | |
| Mega Watts | 9.7 | | | |
| KSCF/hour | 51 | | | |

**Signature:** Ken Will

GT2 DB

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:59:22 PM
Date: 01/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.1 % |
| CO | 3 ppm |
| Eff | 80.9 % |
| $CO_2$ | 4.4 % |
| T-Stk | 272 °F |
| T-Air | 77.9 °F |
| EA | 150.7 % |
| CO(15) | 3 ppm |
| NO | 23.6 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 26.9 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.78 LPM |

Comments:
MW 9.7
KSCF 51

BLR4

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 02:54:34 PM
Date: 01/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 5.9 % |
| CO | 0 ppm |
| Eff | 77.8 % |
| $CO_2$ | 8.5 % |
| T-Stk | 519 °F |
| T-Air | 76.3 °F |
| EA | 35.1 % |
| CO(15) | 0 ppm |
| NO | 81 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 81 ppm |
| NO(15) | 32 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.78 LPM |

Comments:
KSCF - 43

| Date: 5/1/23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | 1429 | | |
| Recorded Test | | 1454 | | |
| O2 | | 5.9 % | | |
| CO | | 0 PPM | | |
| Eff | | 77.8 % | | |
| CO2 | | 8.5 % | | |
| T-Stk | | 519 °F | | |
| T-Air | | 76.3 °F | | |
| EA | | 35.1 % | | |
| CO (15) | | 0 PPM | | |
| NO | | 81 PPM | | |
| NO2 | | 0 PPM | | |
| NOX | | 81 PPM | | |
| SO2 | | — | | |
| NO (15) | | 32 PPM | | |
| NOX (15) | | 32 PPM | | |
| SO2 (15 | | — | | |
| K lbs/hour | | 43 | | |

**Signature:** Ken Will

IEN PRINT TEST RESULTS

EN PRINT TEST RESULTS

EET

5/8/23

## EMISSION TEST COLLEGE

| Date: 5/8/23 | GT 1 DB | GT 2 DB | | |
|---|---|---|---|---|
| Start Test | 7:46:12 | 7:40:34 | | |
| Recorded Test | 7:50 AM | 7:45 AM | | |
| O2 | 15.6 | 14.5 | | |
| CO | 10 | 3 | | |
| Eff | 71.7 | 80.7 | | |
| CO2 | 3.0 | 3.6 | | |
| T-Stk | 340 | 240 | | |
| T-Air | 76.6 | 74.2 | | |
| EA | 250 | 202 | | |
| CO (15) | 11 ~~350~~ | 3 | | |
| NO | 9.8 | 17 | | |
| NO2 | 4.8 | 2.6 | | |
| NOX | 14.7 | 19.6 | | |
| SO2 | — | — | | |
| NO (15) | 11 | 16 | | |
| NOX (15) | 16 | 18 | | |
| SO2 (15 | — | — | | |
| Mega Watts | 9.4 | 8.5 | | |
| KSCF/hour | 11 | 23 | | |

**Signature:** D. Green

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:46:12 AM
Date: 08/05/23

5/8/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.6 % |
| CO | 10 ppm |
| Eff | 71.7 % |
| $CO_2$ | 3.0 % |
| T-Stk | 340 °F |
| T-Air | 76.6 °F |
| EA | 250.0 % |
| CO(15) | 11 ppm |
| NO | 9.8 ppm |
| $NO_2$ | 4.8 ppm |
| NOx | 14.7 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 5 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.79 LPM |

Comments:
GT HRSG #1

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:40:34 AM
Date: 08/05/23

5/8

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.5 % |
| CO | 3 ppm |
| Eff | 80.7 % |
| $CO_2$ | 3.6 % |
| T-Stk | 240 °F |
| T-Air | 74.2 °F |
| EA | 202.6 % |
| CO(15) | 3 ppm |
| NO | 17.0 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 19.6 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.79 LPM |

Comments:
HRSG #2 GT2

**Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS**

**TES AND THEN PRINT TEST RESULTS**

**TO THIS SHEET**

| Date: | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/15/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0727 | | | 0752 |
| Recorded Test | 0749 | | | 0803 |
| O2 | 14.9% | | | 15.9% |
| CO | 6ppm | | | 0ppm |
| Eff | 70.8% | | | 66.5% |
| CO2 | 3.4% | | | 2.8% |
| T-Stk | 384°F | | | 394°F |
| T-Air | 73.6°F | | | 74.5°F |
| EA | 220.1% | | | 250.0% |
| CO (15) | 6ppm | | | 0ppm |
| NO | 15.1ppm | | | 16.3ppm |
| NO2 | 4.2ppm | | | 3.2ppm |
| NOX | 19.3ppm | | | 19.6ppm |
| SO2 | XX | | | XX |
| NO (15) | 15ppm | | | 19ppm |
| NOX (15) | 19ppm | | | 23ppm |
| SO2 (15 | XX | | | XX |
| Mega Watts | 10.0 | | | 9.2 |
| KSCF/hour | 19 | | | |

**Signature:** Dawn Duttine

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), WAI

**GT:** RECORD TIME PROBE IS INSERTED (Start), WAIT

WHEN FINISHED TESTING ATTA

| | LR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |

HRSG GT #1

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:49:47 AM
Date: 15/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 14.9 % |
| CO | 6 ppm |
| Eff | 70.8 % |
| $CO_2$ | 3.4 % |
| T-Stk | 384 °F |
| T-Air | 73.6 °F |
| EA | 220.1 % |
| CO(15) | 6 ppm |
| NO | 15.1 ppm |
| $NO_2$ | 4.2 ppm |
| NOx | 19.3 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.79 LPM |

Comments: 66 KPPH
Duct burner on
@ 50 %

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:03:22 AM
Date: 15/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 66.5 % |
| $CO_2$ | 2.8 % |
| T-Stk | 394 °F |
| T-Air | 74.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 16.3 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 19.6 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.79 LPM |

Comments:
HRSG GT #2
Duct burner off
54 KPPH

5/22/23

CP66261

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 5/22/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 0900 | | | 0910 |
| Recorded Test | 09:03 AM | | | 0913 |
| O2 | 14.3% | | | 15.8% |
| CO | 2ppm | | | 0ppm |
| Eff | 73.7% | | | 69.0% |
| CO2 | 3.7% | | | 2.9% |
| T-Stk | 374°F | | | 376°F |
| T-Air | 84.1°F | | | 87.5°F |
| EA | 191.8% | | | 250.0% |
| CO (15) | 2ppm | | | 0ppm |
| NO | 14.2ppm | | | 14.8ppm |
| NO2 | 2.8ppm | | | 3.3ppm |
| NOX | 17.1ppm | | | 18.0ppm |
| SO2 | | | | |
| NO (15) | 13ppm | | | 17ppm |
| NOX (15) | 15ppm | | | 21ppm |
| SO2 (15 | | | | |
| Mega Watts | 9.4 | | | 8.8 |
| | KSCFH - 26 | | | KSCFH - 0 |

**Signature:** [signature]

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:** [signature]

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

HK51G 01 1
Duct Burner

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:03:17 AM
Date: 22/05/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 2 ppm |
| Eff | 73.7 % |
| $CO_2$ | 3.7 % |
| T-Stk | 374 °F |
| T-Air | 84.1 °F |
| EA | 191.8 % |
| CO(15) | 2 ppm |
| NO | 14.2 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 17.1 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.78 LPM |

Comments:
MW 9.4
KSCFH-26

HK51G 01 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:13:12 AM
Date: 22/05/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 69.0 % |
| $CO_2$ | 2.9 % |
| T-Stk | 376 °F |
| T-Air | 87.5 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14.8 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 18.0 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.79 LPM |

Comments:
MW - 8.8
KSCFH-0

CP66261

# EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 09:11:30 AM | | | 08:33:05AM |
| Recorded Test | 09:16:36 AM | | | 08:39:05 AM |
| O2 | 15.3% | | | 15.9% |
| CO | 9ppm | | | 0ppm |
| Eff | 75.4% | | | 72.6% |
| CO2 | 3.2% | | | 2.8% |
| T-Stk | 310°F | | | 325°F |
| T-Air | 83.5°F | | | 83.7°F |
| EA | 240.3% | | | 250.0% |
| CO (15) | 10ppm | | | 0ppm |
| NO | 9.5ppm | | | 14.6 ppm |
| NO2 | 5.7ppm | | | 3.8ppm |
| NOX | 15.2ppm | | | 18.3ppm |
| SO2 | | | | |
| NO (15) | 10ppm | | | 17ppm |
| NOX (15) | 16ppm | | | 21ppm |
| SO2 (15 | | | | |
| Mega Watts | 9.5 | | | 8.7 |
| KSCF/hour | 12 | | | |

Signature: Dawn Fuller

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

Signature: _____

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

GT 1 DB ductburn

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:16:36 AM
Date: 29/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.3 % |
| CO | 9 ppm |
| Eff | 75.4 % |
| $CO_2$ | 3.2 % |
| T-Stk | 310 °F |
| T-Air | 83.5 °F |
| EA | 240.3 % |
| CO(15) | 10 ppm |
| NO | 9.5 ppm |
| $NO_2$ | 5.7 ppm |
| NOx | 15.2 ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 6 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.79 LPM |

Comments:
MW - 9.5

Gas - 12

steam - 64k

GT 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:39:05 AM
Date: 29/05/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.9 % |
| CO | 0 ppm |
| Eff | 72.6 % |
| $CO_2$ | 2.8 % |
| T-Stk | 325 °F |
| T-Air | 83.7 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14.6 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 18.3 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.79 LPM |

MW - 8.7

Comments:

#1 GT DUCT

KSCFH = 8

SPAN = 61

MW 9.8

# EMISSION T ... GY

| Date: | GT 1 DB | GT2 |
|---|---|---|
| Start Test | 6:51 AM | 7:26 AM |
| Recorded Test | 7:06 AM | 7:41 AM |
| O2 | 15.4 % | 15.9 % |
| CO | 10 PPM | 0 PPM |
| Eff | 74.7 % | 74.5 % |
| CO2 | 3.1 % | 2.8 % |
| T-Stk | 311 °F | 294 °F |
| T-Air | 80.6 °F | 82.2 °F |
| EA | 250.0 | 250 % |
| CO (15) | 11 PPM | 0 PPM |
| NO | 10.8 PP | 14.7 PPM |
| NO2 | 5.8 PP | 3.6 PPM |
| NOX | 16.7 P | 18.3 PPM |
| SO2 | | |
| NO (15) | 12 PP | 18 PPM |
| NOX (15) | 18 PPM | 22 PPM |
| SO2 (15 | | |
| Mega Watts | 9.8 | 9.0 |
| KSCF/hour | 8 | |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:06:03 AM
Date: 05/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.4 % |
| CO | 10 ppm |
| Eff | 74.7 % |
| $CO_2$ | 3.1 % |
| T-Stk | 311 °F |
| T-Air | 80.6 °F |
| EA | 250.0 % |
| CO(15) | 11 ppm |
| NO | 10.8 ppm |
| $NO_2$ | 5.8 ppm |
| NOx | 16.7 ppm |
| NO(15) | 12 ppm |
| $NO_2$ (15) | 6 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.79 LPM |

Signature:

Comments:

| Date: | B | LR 2 | BLR 4 |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| K lbs/hour | | | |

Signature:

#2 GT MW = 9.0

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:41:34 AM
Date: 05/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.9 % |
| CO | 0 ppm |
| Eff | 74.5 % |
| $CO_2$ | 2.8 % |
| T-Stk | 294 °F |
| T-Air | 82.2 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 14.7 ppm |
| $NO_2$ | 3.6 ppm |
| NOx | 18.3 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 4 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

Comments:

RM TO THIS SHEET

TES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

**EMISSION T** **GY**

| Date: 6/12/23 | GT 1 DB | GT2 |
|---|---|---|
| Start Test | 06:57:00 | 07:31:00 |
| Recorded Test | 07:12:37 | 07:46:34 |
| O2 | 14.9% | 16.3% |
| CO | 5 PPM | |
| Eff | 74.8% | |
| CO2 | 3.4% | |
| T-Stk | 326°F | 314°F |
| T-Air | 77.1°F | 80.6°F |
| EA | 220.2% | |
| CO (15) | | |
| NO | 12.2 PPM | 14.8 PPM |
| NO2 | 3.4 PPM | 3.5 PPM |
| NOX | 15.6 PPM | 18.3 PPM |
| SO2 | | |
| NO (15) | 12 PPM | 23.47 PPM |
| NOX (15) | 15 PPM | |
| SO2 (15 | | |
| Mega Watts | 9.0 MW | 8.2 |
| KSCF/hour | 19 | |

**Signature:** _____

| Date: | BLR 2 | | | BLR 4 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:12:37
Date: 06/12/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.9 % |
| CO | 5 ppm |
| Eff | 74.8 % |
| $CO_2$ | 3.4 % |
| T-Stk | 326 F |
| T-Air | 77.1 F |
| EA | 220.2 % |
| CO(0) | 17 ppm |
| NO | 12.2 ppm |
| $NO_2$ | 3.4 ppm |
| NOx | 15.6 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.79 LPM |

Comments:

GT#1 → 9.0 MW
19 KSCFH

GT#2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:46:34
Date: 06/12/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.3 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 314 F |
| T-Air | 80.6 F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 14.8 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 18.3 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.80 LPM |

Comments:

GT#2 → 8.2
$(NOX)_{15}$ = 23.47 PPM

**WAIT 15 MINUTES AND THEN PRINT TEST RESULTS**

**S AND THEN PRINT TEST RESULTS**

**O THIS SHEET**

**EMISSION TES**

| Date: 19 JUN 23 | GT 1 DB | | GT2 |
|---|---|---|---|
| Start Test | 7:13 AM | | |
| Recorded Test | 7:16 AM | | |
| O2 | 13.7 % | | |
| CO | 2 PPM | | |
| Eff | 77.2 % | | |
| CO2 | 4.1 % | | |
| T-Stk | 328 F | | |
| T-Air | 77.5 F | | |
| EA | 168.3 % | | |
| CO (15) | | | |
| NO | 18.3 PPM | | |
| NO2 | 2.4 PPM | | |
| NOX | 20.7 PPM | | |
| SO2 | | | |
| NO (15) | 15 PPM | | |
| NOX (15) | 2 PPM | | |
| SO2 (15 | | | |
| Mega Watts | 9.4 | | |
| KSCF/hour | 44 | | |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:16:27 AM
Date: 19/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 2 ppm |
| Eff | 77.2 % |
| $CO_2$ | 4.1 % |
| T-Stk | 328 °F |
| T-Air | 77.5 °F |
| EA | 168.3 % |
| CO(15) | 2 ppm |
| NO | 18.3 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 20.7 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.79 LPM |

Comments: GT1 9.4 MW
Hrly. 44 - KSCfh

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:26:20 AM
Date: 19/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.5 % |
| CO | 34 ppm |
| Eff | 75.4 % |
| $CO_2$ | 3.0 % |
| T-Stk | 299 °F |
| T-Air | 84.3 °F |
| EA | 250.0 % |
| CO(15) | 38 ppm |
| NO | 3.4 ppm |
| $NO_2$ | 17.6 ppm |
| NOx | 21.0 ppm |
| NO(15) | 4 ppm |
| $NO_2$(15) | 19 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.78 LPM |

Comments: BLR2 - 9 K lbs/h

**Signature:** _____

| Date: 19 JUN 23 | BLR 2 | | | BLR |
|---|---|---|---|---|
| Start Test | 7:11 AM | | | |
| Recorded Test | 7:26 AM | | | |
| O2 | 15.5 % | | | |
| CO | 34 PPM | | | |
| Eff | 75.4 % | | | |
| CO2 | 3.0 % | | | |
| T-Stk | 299 F | | | |
| T-Air | 84.3 F | | | |
| EA | 250.0 % | | | |
| CO (15) | 38 PPM | | | |
| NO | 3.4 PPM | | | |
| NO2 | 17.6 PPM | | | |
| NOX | 21 PPM | | | |
| SO2 | | | | |
| NO (15) | 4 PPM | | | |
| NOX (15) | 23 PPM | | | |
| SO2 (15 | | | | |
| K lbs/hour | 9 | | | |

**Signature:** _____

FORM TO THIS SHEET

**INUTES** AND THEN PRINT TEST RESULTS

**'S** AND THEN PRINT TEST RESULTS

## EMISSION TES

| Date: 26 JUN 23 | GT 1 DB | | | GT |
|---|---|---|---|---|
| Start Test | 8:12 AM | | | |
| Recorded Test | 8:15 AM | | | |
| O2 | 13.8 % | | | |
| CO | 2 PPM | | | |
| Eff | 78.6 % | | | |
| CO2 | 4 % | | | |
| T-Stk | 310 F | | | |
| T-Air | 88.6 F | | | |
| EA | 171.4 % | | | |
| CO (15) | 1 PPM | | | |
| NO | 16.5 PPM | | | |
| NO2 | 2.6 PPM | | | |
| NOX | 19.1 PPM | | | |
| SO2 | | | | |
| NO (15) | 14 PPM | | | |
| NOX (15) | 2 PPM | | | |
| SO2 (15 | | | | |
| Mega Watts | 8.8 | | | |
| KSCF/hour | 38 | | | |

HRSG 1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:15:40 AM
Date: 26/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.8 % |
| CO | 2 ppm |
| Eff | 78.6 % |
| $CO_2$ | 4.0 % |
| T-Stk | 310 F |
| T-Air | 88.6 F |
| EA | 171.4 % |
| CO(15) | 1 ppm |
| NO | 16.5 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 19.1 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.78 LPM |

Comments: GT#1 → 8-8
D.8 = 38 KSCFH

BOILER #2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:22:14 AM
Date: 26/06/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.2 % |
| CO | 102 ppm |
| Eff | 83.9 % |
| $CO_2$ | 7.2 % |
| T-Stk | 293 F |
| T-Air | 88.9 F |
| EA | 57.8 % |
| CO(15) | 47 ppm |
| NO | 18.0 ppm |
| $NO_2$ | 15.6 ppm |
| NOx | 33.6 ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 7 ppm |
| NOx(15) | 16 ppm |
| Flow | 0.78 LPM |

Comments: BOILER #2
18 KPPH

**Signature:**

| Date: 26 JUN 23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 8:07 AM | | | |
| Recorded Test | 8:22 AM | | | |
| O2 | 8.2 % | | | |
| CO | 102 PPM | | | |
| Eff | 83.9 % | | | |
| CO2 | 7.2 % | | | |
| T-Stk | 293 F | | | |
| T-Air | 88.9 F | | | |
| EA | 57.8 % | | | |
| CO (15) | 47 PPM | | | |
| NO | 18.0 PPM | | | |
| NO2 | 15.6 PPM | | | |
| NOX | 33.6 PPM | | | |
| SO2 | | | | |
| NO (15) | 8 PPM | | | |
| NOX (15) | 16 PPM | | | |
| SO2 (15 | | | | |
| K lbs/hour | 18 | | | |

**Signature:**

TACH FORM TO THIS SHEET

T 3-5 MINUTES AND THEN PRINT TEST RESULTS

IT 15 MINUTES AND THEN PRINT TEST RESULTS

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

October 10, 2023

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of July 1, 2023, through September 30, 2023.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Anthony Grancitelli, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility July 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 712.60 | 0.00 | 66649.24 | 0.00 | | 504,090,000 | 0 | 528,009 | 0 | 0.0333 | 0.0000 | 0.0333 | 4.0323 | 0.0000 | 4.0323 | 0.1000 | 0.0000 | 0.1000 | 0.1999 | 0.0000 | 0.1999 | 0.1633 | 0.0000 | 0.1633 | 0.1633 | 0.0000 | 0.1633 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 527,010,000 | 0 | 552,017 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 696.60 | | 31119.74 | | | 80,700,000 | | 84,529 | | 0.0839 | | 0.0839 | 0.2023 | | 0.2023 | 0.1556 | | 0.1556 | 0.0092 | | 0.0092 | 0.0305 | | 0.0305 | 0.0305 | | 0.0305 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 84,510,000 | | 88,520 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 712.60 | 4.70 | 3836.81 | 387.67 | | | | | | 0.0005 | 0.0003 | 0.0008 | 0.1950 | 0.0236 | 0.2186 | 0.0011 | 0.0043 | 0.0053 | 0.0011 | 0.0086 | 0.0097 | 0.0172 | 0.0152 | 0.0324 | 0.0172 | 0.0152 | 0.0324 |
| Boiler 4 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Emerg. Gen. | | 0.00 | | 0.00 | 2.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 54.30 | 0.00 | 907.09 | 0.00 | | | | | | 0.0018 | 0.0000 | 0.0018 | 0.0163 | 0.0000 | 0.0163 | 0.0170 | 0.0000 | 0.0170 | 0.0003 | 0.0000 | 0.0003 | 0.0048 | 0.0000 | 0.0048 | 0.0048 | 0.0000 | 0.0048 |
| Emissions Total | | | | | | | | | | 0.1195 | 0.0003 | 0.1198 | 4.4459 | 0.0236 | 4.4695 | 0.2736 | 0.0043 | 0.2779 | 0.2105 | 0.0086 | 0.2191 | 0.2159 | 0.0152 | 0.2310 | 0.2159 | 0.0152 | 0.2310 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.48 | 113.76 | 6.66 | 3.70 | 5.99 | 5.99 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility August 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 446.20 | 0.00 | 50937.49 | 0.00 | | 470,090,000 | 0 | 492,396 | 0 | 0.0255 | 0.0000 | 0.0255 | 3.0817 | 0.0000 | 3.0817 | 0.0764 | 0.0000 | 0.0764 | 0.1528 | 0.0000 | 0.1528 | 0.1248 | 0.0000 | 0.1248 | 0.1248 | 0.0000 | 0.1248 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 439,530,000 | 0 | 460,386 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 444.50 | | 21472.73 | | | 89,400,000 | | 93,642 | | 0.0579 | | 0.0579 | 0.1396 | | 0.1396 | 0.1074 | | 0.1074 | 0.0063 | | 0.0063 | 0.0211 | | 0.0211 | 0.0211 | | 0.0211 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 83,300,000 | | 87,253 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 739.70 | 4.30 | 15089.56 | 270.75 | | | | | | 0.0018 | 0.0002 | 0.0020 | 0.7669 | 0.0165 | 0.7834 | 0.0042 | 0.0030 | 0.0071 | 0.0044 | 0.0060 | 0.0104 | 0.0677 | 0.0106 | 0.0783 | 0.0677 | 0.0106 | 0.0783 |
| Boiler 4 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Emerg. Gen. | | 0.50 | | 3.882 | 2.5 | | | | | | 0.0002 | 0.0002 | | 0.0062 | 0.0062 | | 0.0016 | 0.0016 | | 0.0000 | 0.0000 | | 0.0001 | 0.0001 | | 0.0001 | 0.0001 |
| Mobile Boiler | 295.40 | 0.00 | 2495.03 | 0.00 | | | | | | 0.0050 | 0.0000 | 0.0050 | 0.0449 | 0.0000 | 0.0449 | 0.0468 | 0.0000 | 0.0468 | 0.0007 | 0.0000 | 0.0007 | 0.0132 | 0.0000 | 0.0132 | 0.0132 | 0.0000 | 0.0132 |
| Emissions Total | | | | | | | | | | 0.0901 | 0.0004 | 0.0905 | 4.0331 | 0.0227 | 4.0558 | 0.2347 | 0.0046 | 0.2393 | 0.1643 | 0.0060 | 0.1703 | 0.2268 | 0.0107 | 0.2375 | 0.2268 | 0.0107 | 0.2376 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.40 | 106.28 | 6.05 | 3.33 | 5.82 | 5.82 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility September 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 645.20 | 0.00 | 84078.81 | 0.00 | | 522,250,000 | 0 | 547,031 | 0 | 0.0420 | 0.0000 | 0.0420 | 5.0868 | 0.0000 | 5.0868 | 0.1261 | 0.0000 | 0.1261 | 0.2522 | 0.0000 | 0.2522 | 0.2060 | 0.0000 | 0.2060 | 0.2060 | 0.0000 | 0.2060 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 407,880,000 | 0 | 427,234 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 269.40 | | 9175.66 | | | 93,730,000 | | 98,177 | | 0.0247 | | 0.0247 | 0.0596 | | 0.0596 | 0.0459 | | 0.0459 | 0.0027 | | 0.0027 | 0.0090 | | 0.0090 | 0.0090 | | 0.0090 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 83,290,000 | | 87,242 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 343.60 | 25.90 | 4349.01 | 74.65 | | | | | | 0.0005 | 0.0001 | 0.0006 | 0.2210 | 0.0046 | 0.2256 | 0.0012 | 0.0008 | 0.0020 | 0.0013 | 0.0016 | 0.0029 | 0.0195 | 0.0029 | 0.0224 | 0.0195 | 0.0029 | 0.0224 |
| Boiler 4 | 488.30 | 0.70 | 12297.06 | 1.40 | | | | | | 0.0026 | 0.0000 | 0.0026 | 0.6300 | 0.0001 | 0.6301 | 0.0133 | 0.0000 | 0.0133 | 0.0036 | 0.0000 | 0.0036 | 0.0370 | 0.0000 | 0.0371 | 0.0370 | 0.0000 | 0.0371 |
| Emerg. Gen. | | 0.00 | | 0.000 | 2.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 352.10 | 0.00 | 2583.01 | 0.00 | | | | | | 0.0052 | 0.0000 | 0.0052 | 0.0465 | 0.0000 | 0.0465 | 0.0484 | 0.0000 | 0.0484 | 0.0008 | 0.0000 | 0.0008 | 0.0137 | 0.0000 | 0.0137 | 0.0137 | 0.0000 | 0.0137 |
| Emissions Total | | | | | | | | | | 0.0751 | 0.0001 | 0.0751 | 6.0440 | 0.0046 | 6.0486 | 0.2349 | 0.0008 | 0.2358 | 0.2606 | 0.0017 | 0.2623 | 0.2852 | 0.0030 | 0.2882 | 0.2852 | 0.0030 | 0.2882 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.40 | 103.67 | 5.93 | 3.38 | 5.61 | 5.61 |
| | | OK | OK | OK | OK | OK | OK |

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 7/4/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 09:49:22AM | | | |
| Recorded Test | 09:52:22AM | | | |
| O2 | 13.5% | | | |
| CO | 0ppm | | | |
| Eff | 79.1% | | | |
| CO2 | 4.2% | | | |
| T-Stk | 316 °F | | | |
| T-Air | 95.1 °F | | | |
| EA | 161.4% | | | |
| CO (15) | 0 ppm | | | |
| NO | 14.3 ppm | | | |
| NO2 | 2.4 ppm | | | |
| NOX | 16.8 ppm | | | |
| SO2 | | | | |
| NO (15) | 11ppm | | | |
| NOX (15) | 13ppm | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | 46 | | [redacted] | |

**Signature:** Dawn Fuller

| Date: 7/4/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 09:21:29AM | | | |
| Recorded Test | 09:42:29 AM | | | |
| O2 | 12.2% | | | |
| CO | 0ppm | | | |
| Eff | 81.3% | | | |
| CO2 | 4.9% | | | |
| T-Stk | 299 °F | | | |
| T-Air | 93.0 °F | | | |
| EA | 123.9% | | | |
| CO (15) | 0 ppm | | | |
| NO | 27.7 ppm | | | |
| NO2 | 1.1 ppm | | | |
| NOX | 28.8 ppm | | | |
| SO2 | | | | |
| NO (15) | 19 ppm | | | |
| NOX (15) | 19 ppm | | | |
| SO2 (15 | | | | |
| K lbs/hour | 12k pph | | | |

**Signature:** Dawn Fuller

BoNer #2

[redacted]

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:42:29 AM
Date: 04/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 12.2 % |
| CO | 0 ppm |
| Eff | 81.3 % |
| $CO_2$ | 4.9 % |
| T-Stk | 299 F |
| T-Air | 93.0 F |
| EA | 123.9 % |
| CO(15) | 0 ppm |
| NO | 27.7 ppm |
| $NO_2$ | 1.1 ppm |
| NOx | 28.8 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flo7 | 0.76 LPM |

GT 1 DB

[redacted]

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:52:22 AM
Date: 04/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.5 % |
| CO | 0 ppm |
| Eff | 79.1 % |
| $CO_2$ | 4.2 % |
| T-Stk | 316 F |
| T-Air | 95.1 F |
| EA | 161.4 % |
| CO(15) | 0 ppm |
| NO | 14.3 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 16.8 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 13 ppm |
| Flo7 | 0.78 LPM |

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 07:48:43 | | | |
| Recorded Test | 07:56:43 | | | |
| O2 | 13.2% | | | |
| CO | 3ppm | | | |
| Eff | 79.3% | | | |
| CO2 | 4.4% | | | |
| T-Stk | 306°F | | | |
| T-Air | 82.3°F | | | |
| EA | 152.4% | | | |
| CO (15) | 2ppm | | | |
| NO | 21.4ppm | | | |
| NO2 | 3.2ppm | | | |
| NOX | 24.5ppm | | | |
| SO2 | | | | |
| NO (15) | 16ppm | | | |
| NOX (15) | 19ppm | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** [signature]

#1 GT 8.9 le ✓

| Date: | BLR 2 | BL |
|---|---|---|
| Start Test | 07:59:26 | |
| Recorded Test | 08:07:26 | |
| O2 | 17.8% | |
| CO | 20ppm | |
| Eff | | |
| CO2 | | |
| T-Stk | 141°F | |
| T-Air | 87.1°F | |
| EA | | |
| CO (15) | | |
| NO | 3.5ppm | |
| NO2 | 3.5ppm | |
| NOX | 7.0ppm | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | 13.3 ppm | |
| SO2 (15 | | |
| K lbs/hour | | |

**Signature:** [signature]

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:56:43 AM
Date: 10/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.2 % |
| CO | 3 ppm |
| Eff | 79.3 % |
| $CO_2$ | 4.4 % |
| T-Stk | 306 F |
| T-Air | 82.3 F |
| EA | 152.4 % |
| CO(15) | 2 ppm |
| NO | 21.4 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 24.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.78 LPM |

Comments:

GT1 DB
KSCFH 4.45

Boiler #2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:07:26 AM
Date: 10/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 17.8 % |
| CO | 20 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 141 F |
| T-Air | 87.1 F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 3.5 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 7.0 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.76 LPM |

NOX = 13.3 CORRECTED

Comments:

ACFM = 427.7

Boiler #2

**Boiler:** RECORD TIME PROBE IS INSERTED (Start

**GT:** RECORD TIME PROBE IS INSERTED (Start),

WHEN FINISHED TESTING

## EMISSION TEST COLLE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 8:20 am | |
| Recorded Test | 8:23 am | |
| O2 | 15% | |
| CO | 0 | |
| Eff | 94 | |
| CO2 | 2.9 | |
| T-Stk | 86 | |
| T-Air | 83.3 | |
| EA | 250 | |
| CO (15) | 0 | |
| NO | 15.3 | |
| NO2 | 3.3 | |
| NOX | 18.6 | |
| SO2 | 4 | |
| NO (15) | [redacted] | |
| NOX (15) | 21 | |
| SO2 (15 | | |
| Mega Watts | 8.8 | |
| KSCF/hour | 43 | |

**Signature:** D. Green

7/17/23

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:16:14 AM
Date: 17/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.5 % |
| CO | 0 ppm |
| Eff | 83.4 % |
| $CO_2$ | 7.0 % |
| T-Stk | 296 °F |
| T-Air | 78.7 °F |
| EA | 61.3 % |
| CO(15) | 0 ppm |
| NO | 31.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 31.9 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.78 LPM |

7/17/23

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:22:04 AM
Date: 17/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 94.9 % |
| $CO_2$ | 2.9 % |
| T-Stk | 86 °F |
| T-Air | 83.3 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 15.3 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 18.6 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.78 LPM |

Comments: BLR #2 18 KPPH

Comments: GT #1 MW = 8-8 D.B = 43 KSCFH

| Date: | BLR 2 | BLR 4 | | | |
|---|---|---|---|---|---|
| Start Test | 8:14 am | | | | |
| Recorded Test | 8:16 am | | | | |
| O2 | 8.5 | | | | |
| CO | 0 | | | | |
| Eff | 83.4 | | | | |
| CO2 | 7.0 | | | | |
| T-Stk | 296 | | | | |
| T-Air | 78.7 | | | | |
| EA | 61.3 | | | | |
| CO (15) | 0 | | | | |
| NO | 31.9 | | | | |
| NO2 | 0 | | | | |
| NOX | 31.9 | | | | |
| SO2 | | | | | |
| NO (15) | 15 | | | | |
| NOX (15) | 15 | | | | |
| SO2 (15 | | | | | |
| K lbs/hour | 18 | | | | |

**Signature:** D. Green

THIS SHEET ND THEN PRINT TEST RESULTS AND THEN PRINT TEST RESULTS

7/17/23

BACHARACH

BACHARACH INC
PCA 400
SN: 20123585

Time: 08:22:04 AM
Date: 17/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 94.9 % |
| $CO_2$ | 2.9 % |
| T-Stk | 86 °F |
| T-Air | 83.3 F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 15.3 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 18.6 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.78 LPM |

Comments:

GT #1

7/17/23

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:16:14 AM
Date: 17/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.5 % |
| CO | 0 ppm |
| Eff | 83.4 % |
| $CO_2$ | 7.0 % |
| T-Stk | 296 F |
| T-Air | 78.7 F |
| EA | 61.3 % |
| CO(15) | 0 ppm |
| NO | 31.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 31.9 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.78 LPM |

Comments:

Blank #2

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 7/24/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 8:00 AM | | | |
| Recorded Test | 8:04 AM | | | |
| O2 | 15.8 % | | | |
| CO | 0 | | | |
| Eff | 97.2% | | | |
| CO2 | 2.9 | | | |
| T-Stk | 82 | | | |
| T-Air | 71.0 | | | |
| EA | 250 | | | |
| CO (15) | 0 | | | |
| NO | 14.7 | | | |
| NO2 | 3.2 | | | |
| NOX | 17.9 | | | |
| SO2 | 17 | | | |
| NO (15) | 4 | | | |
| NOX (15) | 21 | | | |
| SO2 (15 | 0.79 | | | |
| Mega Watts | 8.5 | | | |

**Signature:** D. Green

| Date: 7/24/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 8:52 | | | |
| Recorded Test | 8:58 | | | |
| O2 | 11.5 % | | | |
| CO | 0 | | | |
| Eff | 81.8 | | | |
| CO2 | 5.3 | | | |
| T-Stk | 290 | | | |
| T-Air | 81.5 | | | |
| EA | 109 | | | |
| CO (15) | 0 | | | |
| NO | 34 | | | |
| NO2 | 1.2 | | | |
| NOX | 35.5 | | | |
| SO2 | 22 | | | |
| NO (15) | 1 | | | |
| NOX (15) | 22 | | | |
| SO2 (15 | 0.78 | | | |
| Mega Watts | | | | |

**Signature:** D. Green

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

BLR #2

Time: 08:58:15
Date: 07/24/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 11.5 % |
| CO | 0 ppm |
| Eff | 81.8 % |
| $CO_2$ | 5.3 % |
| T-Stk | 290 °F |
| T-Air | 81.5 °F |
| EA | 109.5 % |
| CO(0) | 0 ppm |
| NO | 34.3 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 35.5 ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

Comments:
BLR #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

GT #1

Time: 08:04:41
Date: 07/24/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.8 % |
| CO | 0 ppm |
| Eff | 97.2 % |
| $CO_2$ | 2.9 % |
| T-Stk | 82 °F |
| T-Air | 71.0 °F |
| EA | 250.0 % |
| CO(0) | 0 ppm |
| NO | 14.7 ppm |
| $NO_2$ | 3.2 ppm |
| NOx | 17.9 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 4 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.79 LPM |

Comments:
GT #1

## EMISSION TEST COLLEC

| Date: 31 Jul 23 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 07:35 | |
| Recorded Test | 07:40 | |
| O2 | 13 % | |
| CO | 3 PPM | |
| Eff | 75.8 % | |
| CO2 | 4.3 % | |
| T-Stk | 375 °F | |
| T-Air | 86 °F | |
| EA | 155.4 % | |
| CO (15) | 3 PPM | |
| NO | 19.6 PPM | |
| NO2 | 2.8 PPM | |
| NOX | 224 PPM | |
| SO2 | | |
| NO (15) | 15 PPM | |
| NOX (15) | 17 PPM | |
| SO2 (15 | | |
| Mega Watts | 8.5 | |
| KSCF/hour | 46 | |

**Signature:** Spencer Jones

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 11:43:36 AM
Date: 31/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 12.1 % |
| CO | 0 ppm |
| Eff | 81.1 % |
| $CO_2$ | 5.0 % |
| T-Stk | 298 °F |
| T-Air | 85.5 °F |
| EA | 122.6 % |
| CO(15) | 0 ppm |
| NO | 34.9 ppm |
| $NO_2$ | 1.5 ppm |
| NOx | 36.4 ppm |
| NO(15) | 23 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 24 ppm |
| Flow | 0.78 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:40:40 AM
Date: 31/07/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.3 % |
| CO | 3 ppm |
| Eff | 75.8 % |
| $CO_2$ | 4.3 % |
| T-Stk | 375 °F |
| T-Air | 86.0 °F |
| EA | 155.4 % |
| CO(15) | 3 ppm |
| NO | 19.6 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 22.4 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.79 LPM |

Comments:
MW: 8.5
D.B = 46 KSCF

| Date: | BLR 2 | BLR 4 | BLR 2 | BLR 1 |
|---|---|---|---|---|
| Start Test | 11:28 | | | |
| Recorded Test | 11:43 | | | |
| O2 | 12.1 % | | | |
| CO | 0 PPM | | | |
| Eff | 81.1 % | | | |
| CO2 | 5.0 % | | | |
| T-Stk | 298 °F | | | |
| T-Air | 85.5 °F | | | |
| EA | 122.6 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 34.9 PPM | | | |
| NO2 | 1.5 PPM | | | |
| NOX | 36.4 PPM | | | |
| SO2 | | | | |
| NO (15) | 23 PPM | | | |
| NOX (15) | 24 PPM | | | |
| SO2 (15 | | | | |
| K lbs/hour | 12 | | | |

**Signature:** _____

MINUTES AND THEN PRINT TEST RESULTS

MINUTES AND THEN PRINT TEST RESULTS

H FORM TO THIS SHEET

EMISSION TEST

| Date: 7 AUG 23 | GT 1 DB | G |
|---|---|---|
| Start Test | 10:16 | |
| Recorded Test | 10:19 | |
| O2 | 13 % | |
| CO | 2 PPM | |
| Eff | 76.4 % | |
| CO2 | 4.5 % | |
| T-Stk | 375 F | |
| T-Air | 88.9 F | |
| EA | 146.6 % | |
| CO (15) | | |
| NO | 21.9 PPM | |
| NO2 | 2.9 PPM | |
| NOX | 24.8 PPM | |
| SO2 | | |
| NO (15) | 16 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | | |
| Mega Watts | 8.6 | |
| KSCF/hour | 50 | |

Signature: [signature]

HRSG #1

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:19:46
Date: 08/07/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.0 % |
| CO | 2 ppm |
| Eff | 76.4 % |
| $CO_2$ | 4.5 % |
| T-Stk | 375 °F |
| T-Air | 88.9 °F |
| EA | 146.6 % |
| CO(0) | 5 ppm |
| NO | 21.9 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 24.8 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.79 LPM |

Comments: 97- KPH
NW- 8.6
KSCFH- 50

BACHARACH

BOILER 2

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:11:41
Date: 08/07/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 9.3 % |
| CO | 0 ppm |
| Eff | 83.6 % |
| $CO_2$ | 6.6 % |
| T-Stk | 294 °F |
| T-Air | 94.9 °F |
| EA | 70.8 % |
| CO(0) | 0 ppm |
| NO | 27.2 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 27.2 ppm |
| NO(15) | 14 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.79 LPM |

Comments: 16- KPH

| Date: 7 AUG 23 | BLR 2 | | BLR 4 | |
|---|---|---|---|---|
| Start Test | 8:57 | | | |
| Recorded Test | 9:11 | | | |
| O2 | 9.3 % | | | |
| CO | 0 PPM | | | |
| Eff | 83.6 % | | | |
| CO2 | 6.6 % | | | |
| T-Stk | 294 F | | | |
| T-Air | 94.9 F | | | |
| EA | 70.8 % | | | |
| CO (15) | | | | |
| NO | 27.2 PPM | | | |
| NO2 | 0.0 PPM | | | |
| NOX | 27.2 PPM | | | |
| SO2 | | | | |
| NO (15) | 14 PPM | | | |
| NOX (15) | 14 PPM | | | |
| SO2 (15 | | | | |
| K lbs/hour | 16 | | | |

Signature: [signature]

ORM TO THIS SHEET

TES AND THEN PRINT TEST RESULTS

JTES AND THEN PRINT TEST RESULTS

## EMISSION TES

| Date: 14 AUG 23 | GT 1 DB |
|---|---|
| Start Test | 9:06 |
| Recorded Test | 9:09 |
| O2 | 13% |
| CO | 2 PPM |
| Eff | 76.2 % |
| CO2 | 4.5% |
| T-Stk | 386 F |
| T-Air | 96.7 F |
| EA | 146.7% |
| CO (15) | 2 PPM |
| NO | 17.4 PPM |
| NO2 | 2.8 PPM |
| NOX | 20.2 PPM |
| SO2 | |
| NO (15) | 13 PPM |
| NOX (15) | 15 PPM |
| SO2 (15 | |
| Mega Watts | |
| KSCF/hour | |

abcdefghijklmnopqrstuvwxyz{|}~ !
bcdefghijklmnopqrstuvwxyz{|}~ !"

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:09:14 AM
Date: 14/08/23

HRSG #1

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 13.0 % |
| CO | 2 ppm |
| Eff | 76.2 % |
| $CO_2$ | 4.5 % |
| T-Stk | 386 °F |
| T-Air | 96.7 °F |
| EA | 146.7 % |
| CO(15) | 2 ppm |
| NO | 17.4 ppm |
| $NO_2$ | 2.8 ppm |
| NOx | 20.2 ppm |
| NO(15) | 13 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.82 LPM |

Comments:

GT

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:56:37 AM
Date: 14/08/23

BOILER 2

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 12.1 % |
| CO | 0 ppm |
| Eff | 81.5 % |
| $CO_2$ | 5.0 % |
| T-Stk | 295 °F |
| T-Air | 90.8 °F |
| EA | 122.0 % |
| CO(15) | 0 ppm |
| NO | 31.4 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 32.7 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.78 LPM |

Comments:

**Signature:**

| Date: 14 AUG 23 | BLR 2 |
|---|---|
| Start Test | 9:41 |
| Recorded Test | 9:56 |
| O2 | 12% |
| CO | 0 PPM |
| Eff | 81.5% |
| CO2 | 5.0% |
| T-Stk | 295 F |
| T-Air | 90.8 F |
| EA | 122% |
| CO (15) | 0 PPM |
| NO | 31.4 PPM |
| NO2 | 1.3 PPM |
| NOX | 32.7 PPM |
| SO2 | |
| NO (15) | 21 PPM |
| NOX (15) | 22 PPM |
| SO2 (15 | |
| K lbs/hour | |

BLI

**Signature:**

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

**TES** AND THEN PRINT TEST RESULTS

**UTES** AND THEN PRINT TEST RESULTS

SN: 18041087

Time: 08:50:56 BOILER #2
Date: 08/21/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 12 ppm |
| Eff | 81.1 % |
| $CO_2$ | 9.9 % |
| T-Stk | 457 °F |
| T-Air | 85.5 °F |
| EA | 17.6 % |
| CO(0) | 14 ppm |
| NO | 38.1 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 40.0 ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 14 ppm |
| Flow | 0.78 LPM |

Comments:

Time: 09:52:42
Date: 08/21/23 MOBILE

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.4 % |
| CO | 0 ppm |
| Eff | 81.4 % |
| $CO_2$ | 7.6 % |
| T-Stk | 391 °F |
| T-Air | 95.2 °F |
| EA | 48.6 % |
| CO(0) | 0 ppm |
| NO | **** ppm |
| $NO_2$ | 0.0 ppm |
| NOx | **** ppm |
| NO(15) | **** ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | **** ppm |
| Flow | 0.79 LPM |

Comments:

**EMISS**

| Date: | GT |
|---|---|
| Start Test | |
| Recorded Test | |
| O2 | |
| CO | |
| Eff | |
| CO2 | |
| T-Stk | |
| T-Air | |
| EA | |
| CO (15) | |
| NO | |
| NO2 | |
| NOX | |
| SO2 | |
| NO (15) | |
| NOX (15) | |
| SO2 (15 | |
| Mega Watts | |
| KSCF/hour | |

**ENERGY**

| '1 | GT |
|---|---|
| | |
| | |
| | |

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

#2 Boiler

BACHARACH

BACHARACH, INC. 75 kPPK
PCA 400
SN: 18041087

Time: 06:57:52
Date: 08/28/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 3.8 % |
| CO | 10 ppm |
| Eff | 82.5 % |
| $CO_2$ | 9.7 % |
| T-Stk | 399 °F |
| T-Air | 83.2 °F |
| EA | 19.5 % |
| CO(0) | 12 ppm |
| NO | 39.5 ppm |
| $NO_2$ | 3.8 ppm |
| NOx | 43.4 ppm |
| NO(15) | 14 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 15 ppm |
| Flow | 0.77 LPM |

Comments:

1901 ACFM

MOBILE 25 %

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:27:55
Date: 08/28/23

Fuel
NGAS

| | |
|---|---|
| $O_2$: | 7.2 % |
| CO | 0 ppm |
| Eff | 81.0 % |
| $CO_2$ | 7.8 % |
| T-Stk | 392 °F |
| T-Air | 81.3 °F |
| EA | 46.3 % |
| CO(0) | 0 ppm |
| NO | 26.6 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 26.6 ppm |
| NO(15) | 11 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 11 ppm |
| Flow | 0.79 LPM |

Comments:

| Date: 28 AUG 23 | BLR 2 | MOBILE ~~BLR 4~~ | | |
|---|---|---|---|---|
| Start Test | 6:54 | 7:24 | | |
| Recorded Test | 6:57 | 7:27 | | |
| O2 | 3.8% | 7.2% | | |
| CO | 10 PPM | 0 PPM | | |
| Eff | 82.5% | 81.0% | | |
| CO2 | 9.7% | 7.8% | | |
| T-Stk | 399 F | 392 F | | |
| T-Air | 83.2 F | 81.3 F | | |
| EA | 19.5% | 46.3% | | |
| CO (15) | | | | |
| NO | 39.5 PPM | 26.6 PPM | | |
| NO2 | 3.8 PPM | 0.0 PPM | | |
| NOX | 43.4 PPM | 26.6 PPM | | |
| SO2 | | | | |
| NO (15) | 14 PPM | 11 PPM | | |
| NOX (15) | 15 PPM | 11 PPM | | |
| SO2 (15 | | | | |
| K lbs/hour | 75 | | | |

**Signature:**

**UTES AND THEN PRINT TEST RESULTS**

**UTES AND THEN PRINT TEST RESULTS**

**M TO THIS SHEET**

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 9/4/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 09:48 | | | |
| Recorded Test | 09:54 | | | |
| O2 | 13.7 % | | | |
| CO | 2 PPM | | | |
| Eff | 79.8 % | | | |
| CO2 | 4.1 % | | | |
| T-Stk | 289°F | | | |
| T-Air | 86.9°F | | | |
| EA | 167.7 % | | | |
| CO (15) | 1 PPM | | | |
| NO | 12.7 PPM | | | |
| NO2 | 2.2 PPM | | | |
| NOX | 14.9 PPM | | | |
| SO2 | – | | | |
| NO (15) | 10 PPM | | | |
| NOX (15) | 12 PPM | | | |
| SO2 (15 | – | | | |
| Mega Watts | 8.0 MW | | | |
| KSCF/hour | 36 KSCFH | | | |

Signature:

| Date: 9/4/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 17:08 | | | |
| Recorded Test | 17:08 | | | |
| O2 | 15.5 % | | | |
| CO | 29 PPM | | | |
| Eff | 75.3 % | | | |
| CO2 | 3.1 % | | | |
| T-Stk | 292°F | | | |
| T-Air | 73.6°F | | | |
| EA | 250.0 % | | | |
| CO (15) | 32 PPM | | | |
| NO | 7.4 PPM | | | |
| NO2 | 16.1 PPM | | | |
| NOX | 23.5 PPM | | | |
| SO2 | – | | | |
| NO (15) | 8 PPM | | | |
| NOX (15) | 26 PPM | | | |
| SO2 (15 | – | | | |
| K lbs/hour | 10 KPPH | | | |

Signature:

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:54:25 AM
Date: 04/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 2 ppm |
| Eff | 79.8 % |
| $CO_2$ | 4.1 % |
| T-Stk | 289 °F |
| T-Air | 86.9 °F |
| EA | 167.7 % |
| CO(15) | 1 ppm |
| NO | 12.7 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 14.9 ppm |
| NO(15) | 10 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.79 LPM |

Comments:
GT 1 / HRSG 1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 05:08:04 PM
Date: 04/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 15.5 % |
| CO | 29 ppm |
| Eff | 75.3 % |
| $CO_2$ | 3.1 % |
| T-Stk | 292 °F |
| T-Air | 73.6 °F |
| EA | 250.0 % |
| CO(15) | 32 ppm |
| NO | 7.4 ppm |
| $NO_2$ | 16.1 ppm |
| NOx | 23.5 ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 18 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.78 LPM |

Comments:
Boiler 2

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 9/11/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 07:37 | | | |
| Recorded Test | 07:42 | | | |
| O2 | 13.9% | | | |
| CO | 3PPM | | | |
| Eff | 77.7% | | | |
| CO2 | 3.9% | | | |
| T-Stk | 321°F | | | |
| T-Air | 89.3°F | | | |
| EA | 178.5% | | | |
| CO (15) | 2PPM | | | |
| NO | 187 PPM | | | |
| NO2 | 2.4 PPM | | | |
| NOX | 20.1 PPM | | | |
| SO2 | *** | | | |
| NO (15) | 15 PPM | | | |
| NOX (15) | 17 PPM | | | |
| SO2 (15 | *** | | | |
| Mega Watts | 8.2 MW | | | |
| KSCF/hour | 42 | | | |

Signature:

| Date: 9/11/23 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 07:29 | 07:34 | | |
| Recorded Test | 07:34 | 07:39 | | |
| O2 | 15.5% | 10.4% | | |
| CO | 31PPM | 0 PPM | | |
| Eff | 76.2% | 79.2% | | |
| CO2 | 3.1% | 5.9% | | |
| T-Stk | 293°F | 361°F | | |
| T-Air | 85°F | 86.4°F | | |
| EA | 250% | 88.4% | | |
| CO (15) | 34 PPM | 0PPM | | |
| NO | 6.1 PPM | ~~47.8PPM 6.1PPM~~ | → | 47.8 PPM |
| NO2 | 14.7 PPM | ~~1.3 20.8PPM~~ | → | 1.3 PPM |
| NOX | 20.8 PPM | 49.0 PPM | | |
| SO2 | XXX | XXX | | |
| NO (15) | 7PPM | 27 PPM | | |
| NOX (15) | 23 PPM | 28 PPM | | |
| SO2 (15 | XXX | XXX | | |
| K lbs/hour | | | | |

Signature:

GT: RECORD TIME PROBE IS INSERTED (Start), WAIT 3-5 MINUTES AND THEN PRINT TEST RESULTS

Boiler: RECORD TIME PROBE IS INSERTED (Start), WAIT 15 MINUTES AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH 1 ORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:36:39 AM
Date: 11/09/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 10.4 % |
| CO | 0 ppm |
| Eff | 79.2 % |
| $CO_2$ | 5.9 % |
| T-Stk | 381 °F |
| T-Air | 86.4 °F |
| EA | 88.4 % |
| CO(15) | 0 ppm |
| NO | 47.8 ppm |
| $NO_2$ | 1.3 ppm |
| NOx | 49.0 ppm |
| NO(15) | 27 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.79 LPM |

Comments:

BLR #4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:42:52 AM
Date: 11/09/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 13.9 % |
| CO | 3 ppm |
| Eff | 77.7 % |
| $CO_2$ | 3.9 % |
| T-Stk | 321 °F |
| T-Air | 89.3 °F |
| EA | 178.5 % |
| CO(15) | 2 ppm |
| NO | 17.7 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 20.1 ppm |
| NO(15) | 15 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.79 LPM |

Comments:

HRSG
Stack #1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:50:58 AM
Date: 11/09/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 16.4 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 77 °F |
| T-Air | 87.9 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 11.7 ppm |
| $NO_2$ | 1.4 ppm |
| NOx | 13.1 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.80 LPM |

Comments:

GT #1

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:34:50 AM
Date: 11/09/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 15.5 % |
| CO | 31 ppm |
| Eff | 76.2 % |
| $CO_2$ | 3.1 % |
| T-Stk | 293 °F |
| T-Air | 85.0 °F |
| EA | 250.0 % |
| CO(15) | 34 ppm |
| NO | 6.1 ppm |
| $NO_2$ | 14.7 ppm |
| NOx | 20.8 ppm |
| NO(15) | 7 ppm |
| $NO_2$(15) | 16 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.78 LPM |

Comments:

BLR #2

CP69902

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 9/18/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0725 | |
| Recorded Test | | | 0731 | |
| O2 | | | 16.0% | |
| CO | | | 0 ppm | |
| Eff | | | 74.1% | |
| CO2 | | | 2.8% | |
| T-Stk | | | 305 of | |
| T-Air | | | 89.8 of | |
| EA | | | 280% | |
| CO (15) | | | 0 ppm | |
| NO | | | 7.5 ppm | |
| NO2 | | | 2.2 ppm | |
| NOX | | | 9.7 ppm | |
| SO2 | | | XX | |
| NO (15) | | | 9 ppm | |
| NOX (15) | | | 12 ppm | |
| SO2 (15 | | | XXX | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:**

| Date: 9/18/23 | Mdl4BLR 3 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0642 | 0704 | | |
| Recorded Test | 0658 | 0721 | | |
| O2 | 7.3% | 5.9 % | | |
| CO | 0 ppm | 0 ppm | | |
| Eff | 80.6 % | 79.8 % | | |
| CO2 | 7.7 % | 8.5 % | | |
| T-Stk | 394 of | 473 of | | |
| T-Air | 73.4 of | 95.9 of | | |
| EA | 47.8 % | 34.8% | | |
| CO (15) | 0 ppm | 0 ppm | | |
| NO | 28.7 ppm | 6.4 ppm | | |
| NO2 | 0 ppm | 0 ppm | | |
| NOX | 28.7 ppm | 6.4 ppm | | |
| SO2 | XX | XX | | |
| NO (15) | 12 ppm | 25 ppm | | |
| NOX (15) | 12 ppm | 25 ppm | | |
| SO2 (15 | XX | XX | | |
| K lbs/hour | 17% (~12K) | | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:31:55 AM
Date: 18/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.0 % |
| CO | 0 ppm |
| Eff | 74.1 % |
| $CO_2$ | 2.8 % |
| T-Stk | 305 °F |
| T-Air | 89.8 °F |
| EA | 250.0 % |
| CO(15) | 0 ppm |
| NO | 7.5 ppm |
| $NO_2$ | 2.2 ppm |
| NOx | 9.7 ppm |
| NO(15) | 9 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.79 LPM |

Comments:
GT. 1
W/O D.B.

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 07:21:14 AM
Date: 18/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.9 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.5 % |
| T-Stk | 473 °F |
| T-Air | 95.9 °F |
| EA | 34.8 % |
| CO(15) | 0 ppm |
| NO | 64 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 64 ppm |
| NO(15) | 25 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 25 ppm |
| Flow | 0.78 LPM |

Comments:
Boiler #4

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 06:58:36 AM
Date: 18/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.3 % |
| CO | 0 ppm |
| Eff | 80.6 % |
| $CO_2$ | 7.7 % |
| T-Stk | 394 °F |
| T-Air | 73.4 °F |
| EA | 47.8 % |
| CO(15) | 0 ppm |
| NO | 28.7 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 28.7 ppm |
| NO(15) | 12 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.79 LPM |

Comments:
Boiler 2

# EMISSION TEST COLLEGE PARK ENERGY

| Date: 9/25/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | 0857 | |
| Recorded Test | | | 0906 | |
| O2 | | | 16.1% | |
| CO | | | 0 ppm | |
| Eff | | | | |
| CO2 | | | 0 ppm | |
| T-Stk | | | 326°F | |
| T-Air | | | 87.3°F | |
| EA | | | | |
| CO (15) | | | 0 ppm | |
| NO | | | 14.1 | |
| NO2 | | | 2.4 | |
| NOX | | | 16.5 | |
| SO2 | | | XXX | |
| NO (15) | | | 17.3 ppm | |
| NOX (15) | | | 20.3 ppm | |
| SO2 (15 | | | XXX | |
| Mega Watts | | | 7.9 MW | |
| KSCF/hour | | | | |

**Signature:**

| Date: 9/25/23 | Mobile BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 0803 | 0828 | | |
| Recorded Test | 0821 | 0846 | | |
| O2 | 7.6% | 5.3% | | |
| CO | 0 | 0 | | |
| Eff | 80.7% | 78.3% | | |
| CO2 | 7.5% | 8.8% | | |
| T-Stk | 397°F | 546°F | | |
| T-Air | 83.6°F | 106.7°F | | |
| EA | 50.5% | 30.5% | | |
| CO (15) | 0 ppm | 0 ppm | | |
| NO | 25.9 ppm | 74 ppm | | |
| NO2 | 0 | 0 ppm | | |
| NOX | 25.9 ppm | 74 ppm | | |
| SO2 | XXX | XXX | | |
| NO (15) | 11 ppm | 28 ppm | | |
| NOX (15) | 11 ppm | 28 ppm | | |
| SO2 (15 | XXX | XXX | | |
| K lbs/hour | ~15 KppH | 32 KppH | | |

**Signature:**

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:46:23 AM
Date: 25/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.3 % |
| CO | 0 ppm |
| Eff | 78.3 % |
| $CO_2$ | 8.8 % |
| T-Stk | 546 °F |
| T-Air | 106.7 °F |
| EA | 30.5 % |
| CO(15) | 0 ppm |
| NO | 74 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 74 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:06:09 AM
Date: 25/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.1 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 326 °F |
| T-Air | 87.3 °F |
| EA | --- % |
| CO(15) | --- ppm |
| NO | 14.1 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 16.5 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.77 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:21:22 AM
Date: 25/09/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 7.6 % |
| CO | 0 ppm |
| Eff | 80.7 % |
| $CO_2$ | 7.5 % |
| T-Stk | 397 °F |
| T-Air | 83.6 °F |
| EA | 50.5 % |
| CO(15) | 0 ppm |
| NO | 25.9 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 25.9 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 11 ppm |
| Flow | 0.78 LPM |

Comments:

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

January 8, 2024

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of October 1, 2023, through December 31, 2023.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures

cc: Anthony Grancitelli, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility October 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 567.60 | 0.00 | 69383.09 | 0.00 | | 588,490,000 | 0 | 616,414 | 0 | 0.0347 | 0.0000 | 0.0347 | 4.1977 | 0.0000 | 4.1977 | 0.1041 | 0.0000 | 0.1041 | 0.2081 | 0.0000 | 0.2081 | 0.1700 | 0.0000 | 0.1700 | 0.1700 | 0.0000 | 0.1700 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 407,880,000 | 0 | 427,234 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 182.30 | | 5897.14 | | | 99,360,000 | | 104,075 | | 0.0159 | | 0.0159 | 0.0383 | | 0.0383 | 0.0295 | | 0.0295 | 0.0017 | | 0.0017 | 0.0058 | | 0.0058 | 0.0058 | | 0.0058 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 83,290,000 | | 87,242 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 688.60 | 28.90 | 8642.51 | 80.83 | | | | | | 0.0010 | 0.0001 | 0.0011 | 0.4392 | 0.0049 | 0.4442 | 0.0024 | 0.0009 | 0.0033 | 0.0025 | 0.0018 | 0.0043 | 0.0388 | 0.0032 | 0.0420 | 0.0388 | 0.0032 | 0.0420 |
| Boiler 4 | 534.90 | 28.30 | 8162.78 | 313.29 | | | | | | 0.0017 | 0.0002 | 0.0020 | 0.4182 | 0.0205 | 0.4387 | 0.0088 | 0.0048 | 0.0136 | 0.0024 | 0.0067 | 0.0091 | 0.0246 | 0.0108 | 0.0354 | 0.0246 | 0.0108 | 0.0354 |
| Emerg. Gen. | | 0.00 | | 0.00 | 2.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 144.00 | 0.00 | 2135.75 | 0.00 | | | | | | 0.0043 | 0.0000 | 0.0043 | 0.0384 | 0.0000 | 0.0384 | 0.0400 | 0.0000 | 0.0400 | 0.0006 | 0.0000 | 0.0006 | 0.0113 | 0.0000 | 0.0113 | 0.0113 | 0.0000 | 0.0113 |
| Emissions Total | | | | | | | | | | 0.0576 | 0.0003 | 0.0579 | 5.1319 | 0.0254 | 5.1573 | 0.1848 | 0.0057 | 0.1905 | 0.2155 | 0.0085 | 0.2240 | 0.2505 | 0.0140 | 0.2645 | 0.2505 | 0.0140 | 0.2645 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.41 | 97.66 | 5.90 | 3.54 | 5.10 | 5.10 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility November 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 626.40 | 0.00 | 76998.05 | 0.00 | | 662,000,000 | 0 | 693,412 | 0 | 0.0385 | 0.0000 | 0.0385 | 4.6584 | 0.0000 | 4.6584 | 0.1155 | 0.0000 | 0.1155 | 0.2310 | 0.0000 | 0.2310 | 0.1886 | 0.0000 | 0.1886 | 0.1886 | 0.0000 | 0.1886 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 407,880,000 | 0 | 427,234 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 613.80 | | 26521.43 | | | 124,680,000 | | 130,596 | | 0.0715 | | 0.0715 | 0.1724 | | 0.1724 | 0.1326 | | 0.1326 | 0.0078 | | 0.0078 | 0.0260 | | 0.0260 | 0.0260 | | 0.0260 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 83,290,000 | | 87,242 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 648.60 | 1.50 | 6724.63 | 58.87 | | | | | | 0.0008 | 0.0000 | 0.0008 | 0.3418 | 0.0036 | 0.3454 | 0.0019 | 0.0006 | 0.0025 | 0.0020 | 0.0013 | 0.0033 | 0.0302 | 0.0023 | 0.0325 | 0.0302 | 0.0023 | 0.0325 |
| Boiler 4 | 292.00 | 7.70 | 16293.08 | 31.29 | | | | | | 0.0035 | 0.0000 | 0.0035 | 0.8347 | 0.0020 | 0.8368 | 0.0176 | 0.0005 | 0.0181 | 0.0048 | 0.0007 | 0.0055 | 0.0491 | 0.0011 | 0.0502 | 0.0491 | 0.0011 | 0.0502 |
| Emerg. Gen. | | 0.00 | | 0.000 | 2.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 17.30 | 1.80 | 8736.78 | 144.00 | | | | | | 0.0175 | 0.0000 | 0.0175 | 0.1573 | 0.0020 | 0.1592 | 0.1638 | 0.0004 | 0.1642 | 0.0026 | 0.0000 | 0.0026 | 0.0463 | 0.0010 | 0.0472 | 0.0463 | 0.0010 | 0.0472 |
| Emissions Total | | | | | | | | | | 0.1318 | 0.0001 | 0.1319 | 6.1646 | 0.0076 | 6.1722 | 0.4314 | 0.0015 | 0.4329 | 0.2482 | 0.0020 | 0.2502 | 0.3402 | 0.0043 | 0.3446 | 0.3402 | 0.0043 | 0.3446 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 1.52 | 98.80 | 6.21 | 3.74 | 4.97 | 4.97 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility December 2023**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage | | | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | scf/12-months NG | gal/12-months FO | mmbtu/12-months NG | mmbtu/12-months FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 440.80 | 0.00 | 55452.00 | 0.00 | | 690,060,000 | 0 | 722,803 | 0 | 0.0277 | 0.0000 | 0.0277 | 3.3548 | 0.0000 | 3.3548 | 0.0832 | 0.0000 | 0.0832 | 0.1664 | 0.0000 | 0.1664 | 0.1359 | 0.0000 | 0.1359 | 0.1359 | 0.0000 | 0.1359 |
| Turbine 2 | 24.00 | 0.00 | 0.00 | 0.00 | | 346,350,000 | 0 | 362,784 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 438.00 | | 19419.72 | | | 143,220,000 | | 150,016 | | 0.0524 | | 0.0524 | 0.1262 | | 0.1262 | 0.0971 | | 0.0971 | 0.0057 | | 0.0057 | 0.0191 | | 0.0191 | 0.0191 | | 0.0191 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 70,640,000 | | 73,992 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2 | 679.40 | 26.00 | 4334.35 | 4747.51 | | | | | | 0.0005 | 0.0037 | 0.0042 | 0.2203 | 0.2895 | 0.5098 | 0.0012 | 0.0521 | 0.0533 | 0.0013 | 0.1048 | 0.1060 | 0.0195 | 0.1857 | 0.2051 | 0.0195 | 0.1857 | 0.2051 |
| Boiler 4 | 722.20 | 21.10 | 51860.30 | 3510.68 | | | | | | 0.0111 | 0.0024 | 0.0135 | 2.6570 | 0.2294 | 2.8864 | 0.0561 | 0.0534 | 0.1095 | 0.0153 | 0.0755 | 0.0907 | 0.1562 | 0.1214 | 0.2776 | 0.1562 | 0.1214 | 0.2776 |
| Emerg. Gen. | | 0.00 | | 0.000 | 2.5 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 242.40 | 51.90 | 5116.77 | 72015.00 | | | | | | 0.0102 | 0.0198 | 0.0300 | 0.0921 | 0.9882 | 1.0803 | 0.0959 | 0.1853 | 0.2812 | 0.0015 | 0.0077 | 0.0092 | 0.0271 | 0.4826 | 0.5097 | 0.0271 | 0.4826 | 0.5097 |
| Emissions Total | | | | | | | | | | 0.1019 | 0.0258 | 0.1277 | 6.4504 | 1.5072 | 7.9576 | 0.3335 | 0.2908 | 0.6243 | 0.1901 | 0.1880 | 0.3781 | 0.3577 | 0.7896 | 1.1474 | 0.3577 | 0.7896 | 1.1474 |

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.46 | 83.56 | 5.88 | 3.72 | 4.78 | 4.78 |
| | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEGE PAR

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 04:44:11 PM
Date: 02/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.5 % |
| CO | 0 ppm |
| Eff | 78.5 % |
| $CO_2$ | 8.7 % |
| T-Stk | 522 °F |
| T-Air | 94.4 °F |
| EA | 32.1 % |
| CO(15) | 0 ppm |
| NO | 78 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 78 ppm |
| NO(15) | 30 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.78 LPM |

Comments: 5FM & 41 KPPH

BACHARACH, INC.
PCA 400 BOILER 2
SN: 20123585

me: 04:36:51 PM
te: 02/10/23

Fuel
NGAS

| | |
|---|---|
| | 6.7 % |
| | 3 ppm |
| f | 84.7 % |
| 2 | 8.0 % |
| Stk | 283 °F |
| Air | 84.4 °F |
| | 42.4 % |
| (15) | 1 ppm |
| | 44.3 ppm |
| | 3.4 ppm |
| | 47.7 ppm |
| (15) | 18 ppm |
| (15) | 1 ppm |
| (15) | 20 ppm |
| ow | 0.77 LPM |

ments: 5FM 20 KPP

MOBILE GAS = 990 ACFM GAS = 451 ACFM

| Date: 2/10/23 | BLR 2 | BLR 4 | ~~BLR 2~~ | |
|---|---|---|---|---|
| Start Test | 4:30 | 4:39 | 4:50 | |
| Recorded Test | 4:36 | 4:44 | 4:56 | |
| O2 | 6.7% | 5.5% | 5.9% | |
| CO | 3 ppm | 0 ppm | 0 ppm | |
| Eff | 84.7% | 78.5% | 81.7% | |
| CO2 | 8.0% | 8.7% | 8.5% | |
| T-Stk | 283 °F | 52.2 °F | 414 °F | |
| T-Air | 84.4 °F | 94.4 °F | 102.4 °F | |
| EA | 42.4% | 32.1% | 34.8% | |
| CO (15) | 1 ppm | 0 ppm | 0 ppm | |
| NO | 44.3 ppm | 78 ppm | 20.8 ppm | |
| NO2 | 3.4 ppm | 0.0 ppm | 0.0 ppm | |
| NOX | 47.7 ppm | 78 ppm | 20.8 ppm | |
| SO2 | | | | |
| NO (15) | 18 ppm | 30 ppm | 8 ppm | |
| NOX (15) | 20 ppm | 30 ppm | 8 ppm | |
| SO2 (15 | | | | |
| K lbs/hour | 20 | 41 | 30% | |

**Signature:**

SN: 20123585

Time: 04:56:24 PM
Date: 02/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.9 % |
| CO | 0 ppm |
| Eff | 81.7 % |
| $CO_2$ | 8.5 % |
| T-Stk | 414 °F |
| T-Air | 102.4 °F |
| EA | 34.8 % |
| CO(15) | 0 ppm |
| NO | 20.8 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 20.8 ppm |
| NO(15) | 8 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 8 ppm |
| Flow | 0.77 LPM |

Comments:

30 %

## EMISSION TEST COLLEGE P

| Date: | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | | | |
| CO | | | |
| Eff | | | |
| CO2 | | | |
| T-Stk | | | |
| T-Air | | | |
| EA | | | |
| CO (15) | | | |
| NO | | | |
| NO2 | | | |
| NOX | | | |
| SO2 | | | |
| NO (15) | | | |
| NOX (15) | | | |
| SO2 (15 | | | |
| Mega Watts | | | |

**Signature:** _____

BACHARACH

BACHARACH, INC.
PCA 400 BOILER #2
SN: 20123585

Time: 02:07:33 PM
Date: 09/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.3 % |
| CO | 0 ppm |
| Eff | 84.0 % |
| $CO_2$ | 9.4 % |
| T-Stk | 338 °F |
| T-Air | 85.1 °F |
| EA | 22.7 % |
| CO(15) | 0 ppm |
| NO | 57 ppm |
| $NO_2$ | 1.8 ppm |
| NOx | 59 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments:
STEAM FLOW = 50 KPPH

BACHARACH

BACHARACH, INC.
PCA 400 BOILE
SN: 20123585

Time: 02:28:35 PM
Date: 09/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.9 % |
| CO | 0 ppm |
| Eff | 79.6 % |
| $CO_2$ | 8.4 % |
| T-Stk | 484 °F |
| T-Air | 103.1 °F |
| EA | 35.4 % |
| CO(15) | 0 ppm |
| NO | 75 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 75 ppm |
| NO(15) | 30 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.75 LPM |

Comments:
STEAM FLOW = 40
KPP

Boiler RECORD TEST RESULTS

| Date: 9 OCT 23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 1:52 PM | 2:13 PM | | |
| Recorded Test | 2:07 PM | 2:28 PM | | |
| O2 | 4.3 % | 5.9 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 84.0 % | 79.6 % | | |
| CO2 | 9.4 % | 8.4 % | | |
| T-Stk | 338 °F | 484 °F | | |
| T-Air | 85.1 °F | 103.1 °F | | |
| EA | 22.7 % | 35.4 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 57 PPM | 75 PPM | | |
| NO2 | 1.8 PPM | 0.0 PPM | | |
| NOX | 59 PPM | 75 PPM | | |
| SO2 | | | | |
| NO (15) | 20 PPM | 30 PPM | | |
| NOX (15) | 21 PPM | 30 PPM | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:** Spencer Jones

MINUTES AND THEN PRINT TEST RESULTS

MINUTES AND THEN PRINT TEST RESULTS

ORM TO THIS SHEET

## EMISSION TEST COLLEG

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |

**Signature:**

BACHARACH, INC. #2
PCA 400
SN: 20123585 Boiler

Time: 07:09:17 AM
Date: 16/10/23

Fuel
NGAS

| | |
|---|---|
| $O_{22}$ | 3.4 % |
| CO | 10 ppm |
| Eff | 82.6 % |
| $CO_2$ | 9.9 % |
| T-Stk | 399 °F |
| T-Air | 80.2 °F |
| EA | 17.0 % |
| CO(15) | 3 ppm |
| NO | 53 ppm |
| $NO_2$ | 4.3 ppm |
| NOx | 57 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.76 LPM |

Comments:
1735 ACFM

BACHARACH, INC.
PCA 400 #4
SN: 20123585

Time: 07:36:52 AM Boiler
Date: 16/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.6 % |
| CO | 0 ppm |
| Eff | 79.3 % |
| $CO_2$ | 8.6 % |
| T-Stk | 497 °F |
| T-Air | 97.4 °F |
| EA | 32.6 % |
| CO(15) | 0 ppm |
| NO | 72 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 72 ppm |
| NO(15) | 28 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 28 ppm |
| Flow | 0.75 LPM |

Comments:
798 ACFM

| Date: 16 OCT 23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | 3.4 % | 5.6 % | | |
| CO | 10 PPM | 0 PPM | | |
| Eff | 82.6 % | 79.3 % | | |
| CO2 | 9.9 % | 8.6 % | | |
| T-Stk | 399 F | 497 F | | |
| T-Air | 80.2 F | 97.4 F | | |
| EA | 17 % | 32.6 % | | |
| CO (15) | 3 PPM | 0 PPM | | |
| NO | 53 PPM | 72 PPM | | |
| NO2 | 4.3 PPM | 0.0 PPM | | |
| NOX | 57 PPM | 72 PPM | | |
| SO2 | | | | |
| NO (15) | 18 PPM | 28 PPM | | |
| NOX (15) | 19 PPM | 28 PPM | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:** Spencer Jones

**UTES AND THEN PRINT TEST RESULTS**

**TES AND THEN PRINT TEST RESULTS**

**M TO THIS SHEET**

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |

**Signature:** _____

BACHARACH, INC.
PCA 400
SN: 20123585 BOILER 2

Time: 07:04:16 AM
Date: 23/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.7 % |
| CO | 11 ppm |
| Eff | 82.6 % |
| $CO_2$ | 9.7 % |
| T-Stk | 388 °F |
| T-Air | 75.0 °F |
| EA | 18.9 % |
| CO(15) | 4 ppm |
| NO | 56 ppm |
| $NO_2$ | 4.5 ppm |
| NOx | 61 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH, INC.
PCA 400 BOILER 4
SN: 20123585

Time: 07:37:50 AM
Date: 23/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.6 % |
| CO | 0 ppm |
| Eff | 78.5 % |
| $CO_2$ | 8.6 % |
| T-Stk | 520 °F |
| T-Air | 95.0 °F |
| EA | 32.4 % |
| CO(15) | 0 ppm |
| NO | 80 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 80 ppm |
| NO(15) | 31 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 31 ppm |
| Flow | 0.75 LPM |

Comments:

| Date: 23 OCT 23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 6:49AM | 7:22AM | | |
| Recorded Test | 7:04AM | 7:37AM | | |
| O2 | 3.7% | 5.6% | | |
| CO | 11 PPM | 0 PPM | | |
| Eff | 82.6% | 78% | | |
| CO2 | 9.7% | 8.6% | | |
| T-Stk | 388 F | 520 F | | |
| T-Air | 75 F | 95 F | | |
| EA | 18.9% | 32% | | |
| CO (15) | 4 PPM | 0 PPM | | |
| NO | 56 PPM | 80 PPM | | |
| NO2 | 4.5 PPM | 0 PPM | | |
| NOX | 61 PPM | 80 PPM | | |
| SO2 | | | | |
| NO (15) | 19 PPM | 31 PPM | | |
| NOX (15) | 21 PPM | 31 PPM | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:** Lynne Jones

INUTES AND THEN PRINT TEST RESULTS

NUTES AND THEN PRINT TEST RESULTS

ORM TO THIS SHEET

OP 71219

## EMISSION TEST COLLE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BLR 2
66KppH

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:37:59 AM
Date: 30/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.4 % |
| CO | 0 ppm |
| Eff | 83.5 % |
| $CO_2$ | 9.9 % |
| T-Stk | 369 °F |
| T-Air | 88.5 °F |
| EA | 17.4 % |
| CO(15) | 0 ppm |
| NO | 17.2 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 17.2 ppm |
| NO(15) | 6 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 6 ppm |
| Flow | 0.76 LPM |

BLR4
33KppH

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:07:19 AM
Date: 30/10/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 0 ppm |
| Eff | 79.3 % |
| $CO_2$ | 8.6 % |
| T-Stk | 489 °F |
| T-Air | 91.2 °F |
| EA | 33.1 % |
| CO(15) | 0 ppm |
| NO | 9.7 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 9.7 ppm |
| NO(15) | 4 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 4 ppm |
| Flow | 0.80 LPM |

Comments:

| Date: 10/30/23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 0912 | 0842 | | |
| Recorded Test | 0937 | 0907 | | |
| O2 | 3.4 % | 5.7 % | | |
| CO | 0 ppm | 0 ppm | | |
| Eff | 83.5 % | 79.3 % | | |
| CO2 | 9.9 % | 8.6 % | | |
| T-Stk | 369 °F | 489 °F | | |
| T-Air | 88.5 °F | 91.2 °F | | |
| EA | 17.4 % | 33.1 % | | |
| CO (15) | 0 | 0 ppm | | |
| NO | 17.2 | 9.7 ppm | | |
| NO2 | 0 | 0 ppm | | |
| NOX | 17.2 | 9.7 ppm | | |
| SO2 | XX | XX | | |
| NO (15) | 6 ppm | 4 ppm | | |
| NOX (15) | 6 ppm | 4 ppm | | |
| SO2 (15 | XX | XX | | |
| K lbs/hour | 66 KppH | 33 KppH | | |

**Signature:**

RM TO THIS SHEET

**TES** AND THEN PRINT TEST RESULTS

**TES** AND THEN PRINT TEST RESULTS

CP-71501

EMISSION TEST COMPANY

| Date: 11/6/23 | GT 1 DB |
|---|---|
| Start Test | 10:50 AM |
| Recorded Test | 10:55 AM |
| O2 | 14.5 % |
| CO | 0 ppm |
| Eff | 77.3 % |
| CO2 | 3.6 % |
| T-Stk | 311 °F |
| T-Air | 87.2 °F |
| EA | 200.9 % |
| CO (15) | 0 ppm |
| NO | 17.0 ppm |
| NO2 | 3.0 ppm |
| NOX | 20.0 ppm |
| SO2 | XXX |
| NO (15) | 16 ppm |
| NOX (15) | 18 ppm |
| SO2 (15 | XXX |
| Mega Watts | 8.7 |
| KSCF/hour | 36 |

Signature: _____

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:43:46 AM
Date: 06/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.9 % |
| CO | 0 ppm |
| Eff | 85.7 % |
| $CO_2$ | 9.0 % |
| T-Stk | 278 °F |
| T-Air | 92.5 °F |
| EA | 27.2 % |
| CO(15) | 0 ppm |
| NO | 55 ppm |
| $NO_2$ | 1.6 ppm |
| NOx | 57 ppm |
| NO(15) | 20 ppm |
| $NO_2$ (15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments:

Boiler #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 10:55:06 AM
Date: 06/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.5 % |
| CO | 0 ppm |
| Eff | 77.3 % |
| $CO_2$ | 3.6 % |
| T-Stk | 311 °F |
| T-Air | 87.2 °F |
| EA | 200.9 % |
| CO(15) | 0 ppm |
| NO | 17.0 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 20.0 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.77 LPM |

Comments:

GT 1 DB

| Date: 11/6/23 | BLR 2 | | | BLR |
|---|---|---|---|---|
| Start Test | 10:28 AM | | | |
| Recorded Test | 10:43 AM | | | |
| O2 | 4.9 % | | | |
| CO | 0 ppm | | | |
| Eff | 85.7 % | | | |
| CO2 | 9.0 % | | | |
| T-Stk | 278 °F | | | |
| T-Air | 92.5 °F | | | |
| EA | 27.2 % | | | |
| CO (15) | 0 ppm | | | |
| NO | 55 ppm | | | |
| NO2 | 1.6 ppm | | | |
| NOX | 57 ppm | | | |
| SO2 | XXX | | | |
| NO (15) | 20 ppm | | | |
| NOX (15) | 21 ppm | | | |
| SO2 (15 | XXX | | | |
| K lbs/hour | 776 | | | |

Signature: Dawn Gatlin

WHEN FINISHED TESTING, PRINT TEST RESULTS AND THEN PRINT TEST RESULTS AND THEN PRINT TEST RESULTS AND THEN

**EMISSION TE**

| Date: | GT 1 DB |
|---|---|
| Start Test | 05:60 PM |
| Recorded Test | 05:55 PM |
| O2 | 13.6% |
| CO | 1 ppm |
| Eff | 78.6% |
| CO2 | 4.1% |
| T-Stk | 309°F |
| T-Air | 82.1 °F |
| EA | 165.0% |
| CO (15) | 0 ppm |
| NO | 20.7 ppm |
| NO2 | 2.4 ppm |
| NOX | 23.1 ppm |
| SO2 | xxx |
| NO (15) | 17 ppm |
| NOX (15) | 19 ppm |
| SO2 (15 | xxx |
| Mega Watts | 8.3 |
| KSCF/hour | 50 |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 05:44:45 PM
Date: 13/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.0 % |
| CO | 0 ppm |
| Eff | 86.0 % |
| $CO_2$ | 9.0 % |
| T-Stk | 257 °F |
| T-Air | 84.8 °F |
| EA | 28.1 % |
| CO(15) | 0 ppm |
| NO | 61 ppm |
| $NO_2$ | 1.0 ppm |
| NOx | 62 ppm |
| NO(15) | 23 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 23 ppm |
| Flow | 0.70 LPM |

Comments:
Boiler #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 05:55:06 PM
Date: 13/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.6 % |
| CO | 1 ppm |
| Eff | 78.6 % |
| $CO_2$ | 4.1 % |
| T-Stk | 309 °F |
| T-Air | 82.1 °F |
| EA | 165.0 % |
| CO(15) | 0 ppm |
| NO | 20.7 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 23.1 ppm |
| NO(15) | 17 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.71 LPM |

Comments:
GT DB #1

| Date: | BLR 2 |
|---|---|
| Start Test | 05:29 PM |
| Recorded Test | 05:44 PM |
| O2 | 5.0% |
| CO | 0 ppm |
| Eff | 86.0% |
| CO2 | 9.0% |
| T-Stk | 257 °F |
| T-Air | 84.8 °F |
| EA | 28.1% |
| CO (15) | 0 ppm |
| NO | 61 ppm |
| NO2 | 1.0 ppm |
| NOX | 62 ppm |
| SO2 | xxx |
| NO (15) | 23 ppm |
| NOX (15) | 0 ppm |
| SO2 (15 | xxx |
| K lbs/hour | 33 |

**Signature:** Dan Sutton

S AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

**EMISSION TE** ... **Y**

| Date: 11/20/23 | GT 1 DB |
|---|---|
| Start Test | 08:26AM |
| Recorded Test | 08:31AM |
| O2 | 13.4% |
| CO | 2ppm |
| Eff | 78.7% |
| CO2 | 4.3% |
| T-Stk | 311°F |
| T-Air | 80.0°F |
| EA | 157.4% |
| CO (15) | 1ppm |
| NO | 21.1ppm |
| NO2 | 2.3ppm |
| NOX | 23.4ppm |
| SO2 | XXX |
| NO (15) | 16ppm |
| NOX (15) | 18ppm |
| SO2 (15 | XXX |
| Mega Watts | 8.4 |
| KSCF/hour | 42 |

**Signature:** Dawn Sutter

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:17:55 AM
Date: 20/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 2 ppm |
| Eff | 83.8 % |
| $CO_2$ | 9.8 % |
| T-Stk | 357 °F |
| T-Air | 88.0 °F |
| EA | 17.8 % |
| CO(15) | 1 ppm |
| NO | 57 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 60 ppm |
| NO(15) | 19 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.75 LPM |

Comments:

BLR 2

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:31:32 AM
Date: 20/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 2 ppm |
| Eff | 78.7 % |
| $CO_2$ | 4.3 % |
| T-Stk | 311 °F |
| T-Air | 80.0 °F |
| EA | 157.4 % |
| CO(15) | 1 ppm |
| NO | 21.1 ppm |
| $NO_2$ | 2.3 ppm |
| NOx | 23.4 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.77 LPM |

Comments:

GT 1 DB

| Date: 11/20/23 | BLR 2 |
|---|---|
| Start Test | 07:50AM |
| Recorded Test | 08:17AM |
| O2 | 3.5% |
| CO | 2ppm |
| Eff | 83.8% |
| CO2 | 9.8% |
| T-Stk | 357°F |
| T-Air | 88.0°F |
| EA | 17.8% |
| CO (15) | 1ppm |
| NO | 57ppm |
| NO2 | 2.4ppm |
| NOX | 60ppm |
| SO2 | XXX |
| NO (15) | 19ppm |
| NOX (15) | 20ppm |
| SO2 (15 | XXX |
| K lbs/hour | 1618 |

**Signature:** Dawn Sutter

WHEN FINISHED ... THEN PRINT TEST RESULTS

THEN PRINT TEST RESULTS

S SHEET

## EMISSION TEST COLLEGE

| Date: 11/27/23 | ~~GT 1 DB~~ | GT 2 DB |
|---|---|---|
| Start Test | Boiler 2 (JS) | |
| Recorded Test | | |
| O2 | 3.5% | |
| CO | 3 PPM | |
| Eff | 83.8% | |
| CO2 | 9.8% | |
| T-Stk | 355 F | |
| T-Air | 84.3 F | |
| EA | 17.8% | |
| CO (15) | 1 PPM | |
| NO | 56 PPM | |
| NO2 | 3.3 PPM | |
| NOX | 59 PPM | |
| SO2 | | |
| NO (15) | 19 PPM | |
| NOX (15) | 20 PPM | |
| SO2 (15 | | |
| Mega Watts | 8.3 | |
| KSCF/hour | 42 | |

Signature:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:20:23 AM
Date: 27/11/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.2 % |
| CO | 4 ppm |
| Eff | 78.5 % |
| $CO_2$ | 4.3 % |
| T-Stk | 304 °F |
| T-Air | 66.0 °F |
| EA | 153.4 % |
| CO(15) | 3 ppm |
| NO | 22.3 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 25.6 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.75 LPM |

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:19:02 AM
Date: 27/11/23 Boiler 2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 3 ppm |
| Eff | 83.8 % |
| $CO_2$ | 9.8 % |
| T-Stk | 355 °F |
| T-Air | 84.3 °F |
| EA | 17.8 % |
| CO(15) | 1 ppm |
| NO | 56 ppm |
| $O_2$ | 3.3 ppm |
| Nx | 59 ppm |
| )(15) | 19 ppm |
| $_2$(15) | 1 ppm |
| x(15) | 20 ppm |
| ow | 0.72 LPM |

uments:

| Date: 11/27/23 | ~~BLR 3~~ | BLR 4 | | | |
|---|---|---|---|---|---|
| Start Test | GT 1 (JS) | | | | |
| Recorded Test | | | | | |
| O2 | 13.2% | | | | |
| CO | 4PPM | | | | |
| Eff | 78.5% | | | | |
| CO2 | 4.3% | | | | |
| T-Stk | 304 F | | | | |
| T-Air | 66.0 F | | | | |
| EA | 153.4% | | | | |
| CO (15) | 3PPM | | | | |
| NO | 22.3 PPM | | | | |
| NO2 | 3.3 PPM | | | | |
| NOX | 26.6 PPM | | | | |
| SO2 | | | | | |
| NO (15) | 17 PPM | | | | |
| NOX (15) | 20 PPM | | | | |
| SO2 (15 | | | | | |
| K lbs/hour | 64 | | | | |

Comments:

Signature:

M TO THIS SHEET

UTES AND THEN PRINT TEST RESULTS

AND THEN PRINT TEST RESULTS

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 12/4/23 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |

**Signature:** Dave Sutton

| Date: 12/4/23 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 09:01 | 09:26 |
| Recorded Test | 09:23 | 09:45 |
| O2 | 8.4 % | 6.9 % |
| CO | 3ppm | 0ppm |
| Eff | 85.4 % | 79.8 % |
| CO2 | 7.0 % | 7.9 % |
| T-Stk | 251°F | 462°F |
| T-Air | 91.4°F | 107.1°F |
| EA | 60.0 % | 43.9 % |
| CO (15) | XXX | XXX |
| NO | 23.5ppm | 42.7ppm |
| NO2 | 1.9 ppm | 0.0ppm |
| NOX | 25.4 ppm | 42.7ppm |
| SO2 | XXX | XXX |
| NO (15) | 11ppm | 18ppm |
| NOX (15) | 12 ppm | 18ppm |
| SO2 (15 | | |
| lbs per hour | | |

**Signature:** Dave Sutton

**Boiler**: RECORD TIME PROBE IS INSERTED (Sta

**GT**: RECORD TIME PROBE IS INSERTED (Start)

WHEN FINISHED TESTIN

BACHARACH

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 09:23:55
Date: 04/12/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.4 % |
| CO | 3 ppm |
| Eff | 85.4 % |
| $CO_2$ | 7.0 % |
| T-Stk | 251 °F |
| T-Air | 91.4 °F |
| EA | 60.0 % |
| CO(0) | 6 ppm |
| NO | 23.5 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 25.4 ppm |
| NO(15) | 11 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 12 ppm |
| Flow | 0.77 LPM |

Comments:

BLR #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 09:45:43
Date: 04/12/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.9 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 7.9 % |
| T-Stk | 462 °F |
| T-Air | 107.1 °F |
| EA | 43.9 % |
| CO(0) | 0 ppm |
| NO | 42.7 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 42.7 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.81 LPM |

Comments:

BLR #4

## EMISSION TEST COLLEGE

| Date: | GT 1 DB | GT 2 DB |
|---|---|---|
| t Test | | |
| kecorded Test | | |
| O2 | | |
| CO | | |
| Eff | | |
| CO2 | | |
| T-Stk | | |
| T-Air | | |
| EA | | |
| CO (15) | | |
| NO | | |
| NO2 | | |
| NOX | | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:03:39 AM
Date: 11/12/23

Fuel
Oil 2

| | |
|---|---|
| $O_2$ | 3.5 % |
| CO | 1 ppm |
| Eff | 86.4 % |
| $CO_2$ | 13.0 % |
| T-Stk | 417 °F |
| T-Air | 85.7 °F |
| EA | 18.5 % |
| CO(15) | 0 ppm |
| NO | 27.4 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 27.4 ppm |
| NO(15) | 9 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 9 ppm |
| Flow | 0.88 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:34:03 AM
Date: 11/12/23

Fuel
Oil 2

| | |
|---|---|
| $O_2$ | 5.2 % |
| CO | 0 ppm |
| Eff | 81.7 % |
| $CO_2$ | 11.7 % |
| T-Stk | 602 °F |
| T-Air | 111.9 °F |
| EA | 30.7 % |
| CO(15) | 0 ppm |
| NO | 35.5 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 35.5 ppm |
| NO(15) | 13 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 13 ppm |
| Flow | 0.90 LPM |

Comments:

**nature:**

| Date: 11/12/23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 8:48AM | 9:19AM | | |
| Recorded Test | 9:03AM | 9:34AM | | |
| O2 | 3.5% | 5.2% | | |
| CO | 1 PPM | 0 PPM | | |
| Eff | 86.4% | 81.7% | | |
| CO2 | 13% | 11.7% | | |
| T-Stk | 417 F | 602 F | | |
| T-Air | 85.7 F | 111.9 F | | |
| EA | 18.5% | 30.7% | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 27.4 PPM | 35.5 PPM | | |
| NO2 | 0.0 PPM | 0.0 PPM | | |
| NOX | 27.4 PPM | 35.5 PPM | | |
| SO2 | | | | |
| NO (15) | 9 PPM | 13 PPM | | |
| NOX (15) | 9 PPM | 13 PPM | | |
| SO2 (15 | | | | |
| lbs/hour | | | | |

**Signature:**

ES AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

## EMISSION TEST COLLE

| Date: 18 DEC 23 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 8:09AM | |
| orded Test | 8:14AM | |
| O2 | 13.7% | |
| CO | 0 PPM | |
| Eff | 76.9% | |
| CO2 | 4.1% | |
| T-Stk | 319 °F | |
| T-Air | 64.4 °F | |
| EA | 168.5% | |
| CO (15) | 0 PPM | |
| NO | 13.1 PPM | |
| NO2 | 0 PPM | |
| NOX | 13.1 PPM | |
| SO2 | | |
| NO (15) | 11 PPM | |
| NOX (15) | 11 PPM | |
| SO2 (15 | | |
| Mega Watts | | |
| KSCF/hour | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 08:43:17 AM
Date: 18/12/23 BOILER 4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.6 % |
| CO | 0 ppm |
| Eff | 79.8 % |
| $CO_2$ | 8.1 % |
| T-Stk | 465 °F |
| T-Air | 104.0 °F |
| EA | 41.0 % |
| CO(15) | 0 ppm |
| NO | 14.6 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 14.6 ppm |
| NO(15) | 6 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 6 ppm |
| Flow | 0.73 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 20123585

Time: 09:24:39 AM
Date: 18/12/23

Fuel BOILER 2
NGAS

| | |
|---|---|
| $O_2$ | 4.4 % |
| CO | 0 ppm |
| Eff | 85.0 % |
| $CO_2$ | 9.3 % |
| T-Stk | 316 °F |
| T-Air | 99.7 °F |
| EA | 23.5 % |
| CO(15) | 0 ppm |
| NO | 16.2 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 16.2 ppm |
| NO(15) | 6 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 6 ppm |
| Flow | 0.82 LPM |

Comments:

| Date: 18 DEC 23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 9:09AM | 8:28AM | | |
| Recorded Test | 9:24AM | 8:43AM | | |
| O2 | 4.4% | 6.6% | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 85% | 79.8% | | |
| CO2 | 9.3% | 8.1% | | |
| T-Stk | 316 °F | 465 °F | | |
| T-Air | 99.7 °F | 104 °F | | |
| EA | 23.5% | 41% | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 16.2 PPM | 14.6 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 16.2 PPM | 14.6 PPM | | |
| SO2 | | | | |
| NO (15) | 6 PPM | 6 PPM | | |
| NOX (15) | 6 PPM | 6 PPM | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:**

PCA 400
SN: 20123585

Time: 08:14:56 AM
Date: 18/12/23

GT 1 Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 0 ppm |
| Eff | 76.9 % |
| $CO_2$ | 4.1 % |
| T-Stk | 319 °F |
| T-Air | 64.4 °F |
| EA | 168.5 % |
| CO(15) | 0 ppm |
| NO | 13.1 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 13.1 ppm |
| NO(15) | 11 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 11 ppm |
| Flow | 0.75 LPM |

Comments:

## EMISSION TEST COLLEGE

| Date: 25 DEC 23 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | 13.7 % | |
| CO | 2 PPM | |
| Eff | 76.6 % | |
| CO2 | 4.0 % | |
| T-Stk | 330 F | |
| T-Air | 71.9 F | |
| EA | 170.4 % | |
| CO (15) | 7 PPM | |
| NO | 19.5 PPM | |
| NO2 | 3.1 PPM | |
| NOX | 22.6 PPM | |
| SO2 | | |
| NO (15) | 16 PPM | |
| NOX (15) | 19 PPM | |
| SO2 (15 | | |
| Mega Watts | | |

**Signature:**

| Date: 25 DEC 23 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | 4.9 % | 16.6 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 85.9 % | | | |
| CO2 | 9.0 % | | | |
| T-Stk | 283 F | 497 F | | |
| T-Air | 106.7 F | 111.2 F | | |
| EA | 27.3 % | | | |
| CO (15) | 0 PPM | | | |
| NO | 58 PPM | 69 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 58 PPM | 69 PPM | | |
| SO2 | | | | |
| NO (15) | 21 PPM | | | |
| NOX (15) | 21 PPM | | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 22043113

HRSG 1
~~B2~~

Time: 06:47:18 AM
Date: 12/25/23

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.7 % |
| CO | 2 ppm |
| Eff | 76.6 % |
| $CO_2$ | 4.0 % |
| T-Stk | 330 °F |
| T-Air | 71.9 °F |
| EA | 170.4 % |
| CO(0) | 7 ppm |
| NO | 19.5 ppm |
| $NO_2$ | 3.1 ppm |
| NOx | 22.6 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 3 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 08:27:44 AM
Date: 12/25/23

B2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.9 % |
| CO | 0 ppm |
| Eff | 85.9 % |
| $CO_2$ | 9.0 % |
| T-Stk | 283 °F |
| T-Air | 106.7 °F |
| EA | 27.3 % |
| CO(0) | 0 ppm |
| NO | 58 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 58 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.76 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 07:23:19 AM
Date: 12/25/23

B4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 16.6 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 497 °F |
| T-Air | 111.2 °F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 69 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 69 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.78 LPM |

Comments:

**University of Maryland- Combined Heating and Power Plant Facility January 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 730.70 | 0.00 | 89507.96 | 0.00 | | 678,850,000 | 0 | 694,905 | 0 | 0.0448 | 0.0000 | 0.0448 | 5.4152 | 0.0000 | 5.4152 | 0.1343 | 0.0000 | 0.1343 | 0.2685 | 0.0000 | 0.2685 | 0.2193 | 0.0000 | 0.2193 | 0.2193 | 0.0000 | 0.2193 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 279,990,000 | 0 | 286,612 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 725.20 | | 31958.35 | | | 172,570,000 | | 176,651 | | 0.0862 | | 0.0862 | 0.2077 | | 0.2077 | 0.1598 | | 0.1598 | 0.0094 | | 0.0094 | 0.0314 | | 0.0314 | 0.0314 | | 0.0314 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 48,120,000 | | 49,258 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 626.40 | 2.10 | 28457.47 | 131.88 | | | | | | 0.0070 | 0.0000 | 0.0070 | 1.2806 | 0.0106 | 1.2911 | 0.0569 | 0.0001 | 0.0570 | 0.0270 | 0.0005 | 0.0276 | 0.0155 | 0.0002 | 0.0157 | 0.0155 | 0.0002 | 0.0157 |
| Boiler 4 | 686.70 | 2.10 | 5874.97 | 94.96 | | | | | | 0.0014 | 0.0000 | 0.0015 | 0.3231 | 0.0066 | 0.3298 | 0.0029 | 0.0000 | 0.0030 | 0.0056 | 0.0004 | 0.0060 | 0.0088 | 0.0001 | 0.0089 | 0.0088 | 0.0001 | 0.0089 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler* | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Emissions Total | | | | | | | | | | 0.1393 | 0.0001 | 0.1394 | 7.2267 | 0.0172 | 7.2439 | 0.3539 | 0.0001 | 0.3540 | 0.3105 | 0.0009 | 0.3114 | 0.2749 | 0.0003 | 0.2752 | 0.2749 | 0.0003 | 0.2752 |

*Please note that in late January it was discovered that the natural gas supply flow meters for Boiler #2 and the mobile boiler were found to be malfunctioning. The replacement parts were ordered and the new flow meter was installed on the Mobile Boiler in February. The Mobile Boiler meter was determined to be functioning properly in March. To estimate the natural gas fuel usage for Boiler #2, we subtracted the sum of the other natural gas units' usage for the month from the building's total natural gas usage for the month.

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.42 | 79.17 | 5.38 | 3.40 | 3.45 | 3.45 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility February 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 648.00 | 0.00 | 79568.31 | 0.00 | | 756,580,000 | 0 | 774,473 | 0 | 0.0398 | 0.0000 | 0.0398 | 4.8139 | 0.0000 | 4.8139 | 0.1194 | 0.0000 | 0.1194 | 0.2387 | 0.0000 | 0.2387 | 0.1949 | 0.0000 | 0.1949 | 0.1949 | 0.0000 | 0.1949 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 217,420,000 | 0 | 222,562 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 646.50 | | 28273.21 | | | 200,190,000 | | 204,924 | | 0.0762 | | 0.0762 | 0.1838 | | 0.1838 | 0.1414 | | 0.1414 | 0.0083 | | 0.0083 | 0.0277 | | 0.0277 | 0.0277 | | 0.0277 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 27,820,000 | | 28,478 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 517.60 | 0.00 | 87931.54 | 0.00 | | | | | | 0.0215 | 0.0000 | 0.0215 | 3.9569 | 0.0000 | 3.9569 | 0.1759 | 0.0000 | 0.1759 | 0.0835 | 0.0000 | 0.0835 | 0.0479 | 0.0000 | 0.0479 | 0.0479 | 0.0000 | 0.0479 |
| Boiler 4 | 377.50 | 0.00 | 8547.48 | 0.00 | | | | | | 0.0021 | 0.0000 | 0.0021 | 0.4701 | 0.0000 | 0.4701 | 0.0042 | 0.0000 | 0.0042 | 0.0081 | 0.0000 | 0.0081 | 0.0128 | 0.0000 | 0.0128 | 0.0128 | 0.0000 | 0.0128 |
| Emerg. Gen. | | 0.00 | | 0.000 | 0.0 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler* | 425.20 | 0.00 | 311496.70 | 0.00 | | | | | | 0.6230 | 0.0000 | 0.6230 | 5.6069 | 0.0000 | 5.6069 | 5.8406 | 0.0000 | 5.8406 | 0.0934 | 0.0000 | 0.0934 | 1.6491 | 0.0000 | 1.6491 | 1.6491 | 0.0000 | 1.6491 |
| Emissions Total | | | | | | | | | | 0.7626 | 0.0000 | 0.7626 | 15.0316 | 0.0000 | 15.0316 | 6.2814 | 0.0000 | 6.2814 | 0.4321 | 0.0000 | 0.4321 | 1.9325 | 0.0000 | 1.9325 | 1.9325 | 0.0000 | 1.9325 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.05 | 88.00 | 11.03 | 3.59 | 5.18 | 5.18 |
| | | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility March 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 592.90 | 0.00 | 70723.98 | 0.00 | | 825,670,000 | 0 | 845,197 | 0 | 0.0354 | 0.0000 | 0.0354 | 4.2788 | 0.0000 | 4.2788 | 0.1061 | 0.0000 | 0.1061 | 0.2122 | 0.0000 | 0.2122 | 0.1733 | 0.0000 | 0.1733 | 0.1733 | 0.0000 | 0.1733 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 129,770,000 | 0 | 132,839 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 428.40 | | 18691.85 | | | 218,450,000 | | 223,616 | | 0.0504 | | 0.0504 | 0.1215 | | 0.1215 | 0.0935 | | 0.0935 | 0.0055 | | 0.0055 | 0.0183 | | 0.0183 | 0.0183 | | 0.0183 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 12,460,000 | | 12,755 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 569.20 | 0.00 | 59792.42 | 0.00 | | | | | | 0.0146 | 0.0000 | 0.0146 | 2.6907 | 0.0000 | 2.6907 | 0.1196 | 0.0000 | 0.1196 | 0.0568 | 0.0000 | 0.0568 | 0.0326 | 0.0000 | 0.0326 | 0.0326 | 0.0000 | 0.0326 |
| Boiler 4 | 488.60 | 0.00 | 19121.78 | 0.00 | | | | | | 0.0047 | 0.0000 | 0.0047 | 1.0517 | 0.0000 | 1.0517 | 0.0095 | 0.0000 | 0.0095 | 0.0182 | 0.0000 | 0.0182 | 0.0286 | 0.0000 | 0.0286 | 0.0286 | 0.0000 | 0.0286 |
| Emerg. Gen. | | 0.30 | | 2.329 | 0.3 | | | | | | 0.0001 | 0.0001 | | 0.0037 | 0.0037 | | 0.0010 | 0.0010 | | 0.0000 | 0.0000 | | 0.0001 | 0.0001 | | 0.0001 | 0.0001 |
| Mobile Boiler | 394.60 | 0.00 | 6202.30 | 0.00 | | | | | | 0.0124 | 0.0000 | 0.0124 | 0.1116 | 0.0000 | 0.1116 | 0.1163 | 0.0000 | 0.1163 | 0.0019 | 0.0000 | 0.0019 | 0.0328 | 0.0000 | 0.0328 | 0.0328 | 0.0000 | 0.0328 |
| Emissions Total | | | | | | | | | | 0.1175 | 0.0001 | 0.1176 | 8.2543 | 0.0037 | 8.2580 | 0.4449 | 0.0010 | 0.4459 | 0.2945 | 0.0000 | 0.2945 | 0.2856 | 0.0001 | 0.2857 | 0.2856 | 0.0001 | 0.2857 |

| Title V 12 Month Rolling Emission Totals | | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | | 2.02 | 89.83 | 10.65 | 3.60 | 5.24 | 5.24 |
| | | OK | OK | OK | OK | OK | OK |

## EMISSION TEST COLLEC

| Date: 1 JAN 24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 7:44 AM | |
| Recorded Test | 7:59 AM | |
| O2 | 19.8 % | |
| CO | 0 PPM | |
| Eff | | |
| CO2 | | |
| T-Stk | 309 °F | |
| T-Air | 70.7 °F | |
| EA | | |
| CO (15) | | |
| NO | 24 PPM | |
| NO2 | 1.8 PPM | |
| NOX | 25.7 PPM | |
| SO2 | | |
| NO (15) | | |
| NOX (15) | | |
| SO2 (15 | | |
| Mega Watts | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 07:10:10 AM
Date: 01/01/24

4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 8.9 % |
| CO | 0 ppm |
| Eff | 77.3 % |
| $CO_2$ | 6.8 % |
| T-Stk | 487 °F |
| T-Air | 105.6 °F |
| EA | 66.5 % |
| CO(0) | 0 ppm |
| NO | 34.8 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 34.8 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.77 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 07:31:07 AM
Date: 01/01/24

2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.7 % |
| CO | 0 ppm |
| Eff | 84.7 % |
| $CO_2$ | 8.0 % |
| T-Stk | 302 °F |
| T-Air | 102.9 °F |
| EA | 42.4 % |
| CO(0) | 0 ppm |
| NO | 50 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 50 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.75 LPM |

| Date: 1 JAN 24 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 7:16 AM | 6:55 AM | | |
| Recorded Test | 7:31 AM | 7:10 AM | | |
| O2 | 6.7 % | 8.9 % | | |
| CO | 0 PPM | 0 PPM | | |
| Eff | 84.7 % | 77.3 % | | |
| CO2 | 8.0 % | 6.8 % | | |
| T-Stk | 302 F | 487 F | | |
| T-Air | 102.9 F | 105.6 F | | |
| EA | 42.4 % | 66.5 % | | |
| CO (15) | 0 PPM | 0 PPM | | |
| NO | 50 PPM | 34.8 PPM | | |
| NO2 | 0 PPM | 0 PPM | | |
| NOX | 50 PPM | 34.8 PPM | | |
| SO2 | | | | |
| NO (15) | 21 PPM | 17 PPM | | |
| NOX (15) | 21 PPM | 17 PPM | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 07:59:49 AM
Date: 01/01/24

Fuel GT 1
NGAS

| | |
|---|---|
| $O_2$ | 19.8 % |
| CO | 0 ppm |
| Eff | --- % |
| $CO_2$ | --- % |
| T-Stk | 309 °F |
| T-Air | 70.7 °F |
| EA | --- % |
| CO(0) | --- ppm |
| NO | 24.0 ppm |
| $NO_2$ | 1.8 ppm |
| NOx | 25.7 ppm |
| NO(15) | --- ppm |
| $NO_2$(15) | --- ppm |
| NOx(15) | --- ppm |
| Flow | 0.72 LPM |

Comments:

## EMISSION TEST COLLEGE P

| Date: 5 JAN 24 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | 12:10 PM | | |
| Recorded Test | 12:25 PM | | |
| O2 | 14.3% | | |
| CO | 1 PPM | | |
| Eff | 76.5% | | |
| CO2 | 3.7% | | |
| T-Stk | 306 °F | | |
| T-Air | 63.9 °F | | |
| EA | 193.3% | | |
| CO (15) | *** | | |
| NO | 11.5 PPM | | |
| NO2 | 0.0 PPM | | |
| NOX | 11.5 PPM | | |
| SO2 | *** | | |
| NO (15) | 10 PPM | | |
| NOX (15) | 10 PPM | | |
| SO2 (15 | *** | | |
| Mega Watts | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 22043113 GT1

Time: 12:25:39 PM
Date: 01/05/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.3 % |
| CO | 1 ppm |
| Eff | 76.5 % |
| $CO_2$ | 3.7 % |
| T-Stk | 306 °F |
| T-Air | 63.9 °F |
| EA | 193.3 % |
| CO(0) | 2 ppm |
| NO | 11.5 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 11.5 ppm |
| NO(15) | 10 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 10 ppm |
| Flow | 0.68 LPM |

Comments: GT/T
Quarterly

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 10:49:12 AM
Date: 01/05/24

B2

Fuel Quarterly
NGAS

| | |
|---|---|
| $O_2$ | 5.5 % |
| CO | 0 ppm |
| Eff | 78.2 % |
| $CO_2$ | 8.7 % |
| T-Stk | 545 °F |
| T-Air | 106.1 °F |
| EA | 31.4 % |
| CO(0) | 0 ppm |
| NO | 83 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 83 ppm |
| NO(15) | 32 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.82 LPM |

| Date: 5 JAN 24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 10:34 | 9:58 | | |
| Recorded Test | 10:49 AM | 10:13 AM | | |
| O2 | 3.6% | 14.7% | | |
| CO | 0 PPM | 5 PPM | | |
| Eff | 84.7% | 74% | | |
| CO2 | 9.7% | 3.5% | | |
| T-Stk | 332 °F | 335 °F | | |
| T-Air | 96.6 °F | 66.5 °F | | |
| EA | 18.7% | 211.2% | | |
| CO (15) | *** | *** | | |
| NO | 39.8 PPM | 17.1 PPM | | |
| NO2 | 0 PPM | 3.5 PPM | | |
| NOX | 39.8 PPM | 20.6 PPM | | |
| SO2 | *** | *** | | |
| NO (15) | 14 PPM | 16 PPM | | |
| NOX (15) | 14 PPM | 20 PPM | | |
| SO2 (15 | *** | *** | | |
| lbs per hour | | | | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 22043113

Time: 10:13:21 AM
Date: 01/05/24

B4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 14.7 % |
| CO | 5 ppm |
| Eff | 74.0 % |
| $CO_2$ | 3.5 % |
| T-Stk | 335 °F |
| T-Air | 66.5 °F |
| EA | 211.2 % |
| CO(0) | 17 ppm |
| NO | 17.1 ppm |
| $NO_2$ | 3.5 ppm |
| NOx | 20.6 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 3 ppm |
| NOx(15) | 20 ppm |
| Flow | 0.74 LPM |

Comments:
Quarterly

## EMISSION TEST COLLEGE

| Date: 8 JAN 24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | | |
| Recorded Test | | |
| O2 | 13.9 | |
| CO | 2 | |
| Eff | 73 | |
| CO2 | 3.9 | |
| T-Stk | 376 | |
| T-Air | 65.7 | |
| EA | 177 | |
| CO (15) | | |
| NO | 19.8 | |
| NO2 | 2.5 | |
| NOX | 22.3 | |
| SO2 | | |
| NO (15) | 17 | |
| NOX (15) | 19 | |
| SO2 (15 | | |
| Mega Watts | | |

**Signature:** _____

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 19:46:15
Date: 01/08/24

Fuel
NGAS GT1

| | |
|---|---|
| $O_2$ | 13.9 % |
| CO | 2 ppm |
| Eff | 73.3 % |
| $CO_2$ | 3.9 % |
| T-Stk | 376 °F |
| T-Air | 65.7 °F |
| EA | 177.9 % |
| CO(0) | 7 ppm |
| NO | 19.8 ppm |
| $NO_2$ | 2.5 ppm |
| NOx | 22.3 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.81 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 20:10:24
Date: 01/08/24 2

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.4 % |
| CO | 0 ppm |
| Eff | 84.4 % |
| $CO_2$ | 9.3 % |
| T-Stk | 325 °F |
| T-Air | 88.1 °F |
| EA | 23.7 % |
| CO(0) | 0 ppm |
| NO | 61 ppm |
| $NO_2$ | 1.2 ppm |
| NOx | 62 ppm |
| NO(15) | 22 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

Comments:

| Date: 8 JAN 24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | 4.4 | 5.7 | | |
| CO | 0 | 0 | | |
| Eff | 84.4 | 79.1 | | |
| CO2 | 9.3 | 8.6 | | |
| T-Stk | 325 | 514 | | |
| T-Air | 88.1 | 111 | | |
| EA | 23.7 | 33.5 | | |
| CO (15) | | | | |
| NO | 61 | 75 | | |
| NO2 | 1.2 | 0.0 | | |
| NOX | 62 | 75 | | |
| SO2 | | | | |
| NO (15) | 22 | 29 | | |
| NOX (15) | 22 | 29 | | |
| SO2 (15 | | | | |
| lbs per hour | | | | |

**Signature:** _____

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 20:35:36
Date: 01/08/24 4

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.7 % |
| CO | 0 ppm |
| Eff | 79.1 % |
| $CO_2$ | 8.6 % |
| T-Stk | 514 °F |
| T-Air | 111.8 °F |
| EA | 33.5 % |
| CO(0) | 0 ppm |
| NO | 75 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 75 ppm |
| NO(15) | 29 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 29 ppm |
| Flow | 0.80 LPM |

Comments:

## EMISSION TEST COLLEGE P

| Date: 1/15/24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 10:42 | |
| Recorded Test | 10:47 | |
| O2 | 13.6% | |
| CO | 0ppm | |
| Eff | 75.8% | |
| CO2 | 4.1% | |
| T-Stk | 365°F | |
| T-Air | 88.7°F | |
| EA | 166.9% | |
| CO (15) | XXX | |
| NO | 31.1ppm | |
| NO2 | 1.7ppm | |
| NOX | 32.9ppm | |
| SO2 | XXX | |
| NO (15) | 25ppm | |
| NOX (15) | 27ppm | |
| SO2 (15 | XXX | |
| Mega Watts | 8.3 | |

**Signature:** Dawn Sullen

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:47:18
Date: 01/15/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.6 % |
| CO | 0 ppm |
| Eff | 75.8 % |
| $CO_2$ | 4.1 % |
| T-Stk | 365 °F |
| T-Air | 88.7 °F |
| EA | 166.9 % |
| CO(0) | 0 ppm |
| NO | 31.1 ppm |
| $NO_2$ | 1.7 ppm |
| NOx | 32.9 ppm |
| NO(15) | 25 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 27 ppm |
| Flow | 0.80 LPM |

Cal 925 Flow
8.3 MW
Comments: 90k steam Flow
DB
HRSTG #1

| Date: 1/15/24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 09:45 | 10:01 | | |
| Recorded Test | 10:01 | 10:35 | | |
| O2 | 3.8% | 5.1% | | |
| CO | 4ppm | 0ppm | | |
| Eff | 84.2% | 76.2% | | |
| CO2 | 9.6% | 8.9% | | |
| T-Stk | 338°F | 628°F | | |
| T-Air | 85.4°F | 111.3°F | | |
| EA | 19.9% | 28.6% | | |
| CO (15) | XXX | XXX | | |
| NO | 59ppm | 96ppm | | |
| NO2 | 2.9ppm | 0.0ppm | | |
| NOX | 61ppm | 96ppm | | |
| SO2 | XXX | XXX | | |
| NO (15) | 20ppm | 36ppm | | |
| NOX (15) | 21ppm | 36ppm | | |
| SO2 (15 | XXX | XXX | | |
| lbs per hour | | | | |

**Signature:** Dawn Sullen

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:01:39
Date: 01/15/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.8 % |
| CO | 4 ppm |
| Eff | 84.2 % |
| $CO_2$ | 9.6 % |
| T-Stk | 338 °F |
| T-Air | 85.4 °F |
| EA | 19.9 % |
| CO(0) | 5 ppm |
| NO | 59 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 61 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.79 LPM |

Steam Flow - 49

Comments:
BLR #2

SN: 18041087

Time: 10:35:05
Date: 01/15/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 5.1 % |
| CO | 0 ppm |
| Eff | 76.2 % |
| $CO_2$ | 8.9 % |
| T-Stk | 628 °F |
| T-Air | 111.3 °F |
| EA | 28.6 % |
| CO(0) | 0 ppm |
| NO | 96 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 96 ppm |
| NO(15) | 36 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 36 ppm |
| Flow | 0.79 LPM |

Steam Flow 53

Comments:
BLR #4

## EMISSION TEST COLLEGE

| Date: 1/22/24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 09:19 | |
| Recorded Test | 09:26 | |
| O2 | 13.8% | |
| CO | 2ppm | |
| Eff | 73.6% | |
| CO2 | 4.0% | |
| T-Stk | 373°F | |
| T-Air | 63.3°F | |
| EA | 173.2% | |
| CO (15) | XXX | |
| NO | 19.7ppm | |
| NO2 | 2.7ppm | |
| NOX | 22.5ppm | |
| SO2 | XXX | |
| NO (15) | 16ppm | |
| NOX (15) | 19ppm | |
| SO2 (15 | XXX | |
| Mega Watts | 8.3 | |
| KSCF/hour | | |

**Signature:** [signature]

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:47:00
Date: 01/22/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 3.8 % |
| CO | 0 ppm |
| Eff | 83.8 % |
| $CO_2$ | 9.7 % |
| T-Stk | 343 °F |
| T-Air | 76.6 °F |
| EA | 19.6 % |
| CO(0) | 0 ppm |
| NO | 62 ppm |
| $NO_2$ | 3.3 ppm |
| NOx | 65 ppm |
| NO(15) | 21 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 22 ppm |
| Flow | 0.79 LPM |

steam flow- 53kpph

Comments:

BLR #2

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:26:17
Date: 01/22/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.8 % |
| CO | 2 ppm |
| Eff | 73.6 % |
| $CO_2$ | 4.0 % |
| T-Stk | 373 °F |
| T-Air | 63.3 °F |
| EA | 173.2 % |
| CO(0) | 7 ppm |
| NO | 19.7 ppm |
| $NO_2$ | 2.7 ppm |
| NOx | 22.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.80 LPM |

MW- 8.3

Comments:

GT 1 HRSTG DB

| Date: 1/22/24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 09:30 | 09:45 | | |
| Recorded Test | 09:47 | 10:05 | | |
| O2 | 3.8% | 6.3% | | |
| CO | 0ppm | 0ppm | | |
| Eff | 83.8% | 79.6% | | |
| CO2 | 9.7% | 8.3% | | |
| T-Stk | 343°F | 466°F | | |
| T-Air | 76.6°F | 92.9°F | | |
| EA | 19.6% | 38.1% | | |
| CO (15) | XXX | XXX | | |
| NO | 62ppm | 65ppm | | |
| NO2 | 3.3ppm | 0.0ppm | | |
| NOX | 65ppm | 65ppm | | |
| SO2 | XXX | XXX | | |
| NO (15) | 21ppm | 26ppm | | |
| NOX (15) | 22ppm | 26ppm | | |
| SO2 (15 | XXX | XXX | | |
| K lbs/hour | | | | |

**Signature:** [signature]

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 10:05:31
Date: 01/22/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 6.3 % |
| CO | 0 ppm |
| Eff | 79.6 % |
| $CO_2$ | 8.3 % |
| T-Stk | 466 °F |
| T-Air | 92.9 °F |
| EA | 38.1 % |
| CO(0) | 0 ppm |
| NO | 65 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 65 ppm |
| NO(15) | 26 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 26 ppm |
| Flow | 0.79 LPM |

steam flow- 28kpph

Comments:

BLR #4

## EMISSION TEST COLLEGE P

| Date: 1/29/24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 0846 | |
| Recorded Test | 0852 | |
| O2 | 13.4% | |
| CO | 3ppm | |
| Eff | 75.0 % | |
| CO2 | 4.2 % | |
| T-Stk | 367 °F | |
| T-Air | 67.3 °F | |
| EA | 159.3 °F | |
| CO (15) | xxx | |
| NO | 21.3ppm | |
| NO2 | 2.6ppm | |
| NOX | 23.9 ppm | |
| SO2 | xxx | |
| NO (15) | 17ppm | |
| NOX (15) | 19 ppm | |
| SO2 (15 | xxx | |
| Mega Watts | 7.8 | |
| KSCF/hour | | |

**Signature:** Dana Gatta

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:52:50
Date: 01/29/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 3 ppm |
| Eff | 75.0 % |
| $CO_2$ | 4.2 % |
| T-Stk | 367 °F |
| T-Air | 67.3 °F |
| EA | 159.3 % |
| CO(0) | 9 ppm |
| NO | 21.3 ppm |
| $NO_2$ | 2.6 ppm |
| NOx | 23.9 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.80 LPM |

MW- 7.8
gas- 5060
Comments:
HRSTG
GT 1 DB

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 09:16:03
Date: 01/29/24

Fuel
NGAS

| | |
|---|---|
| $O_2$ | 4.9 % |
| CO | 0 ppm |
| Eff | 75.4 % |
| $CO_2$ | 9.0 % |
| T-Stk | 654 °F |
| T-Air | 101.7 °F |
| EA | 27.2 % |
| CO(0) | 0 ppm |
| NO | 91 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 91 ppm |
| NO(15) | 34 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 34 ppm |
| Flow | 0.80 LPM |

STEAM Flw - 65 kpph

Comments:

BLR # 4

| Date: 1/29/24 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | | 0850 |
| Recorded Test | | 0916 |
| O2 | | 4.9 % |
| CO | | 0 ppm |
| Eff | | 75.4 % |
| CO2 | | 9.0 % |
| T-Stk | | 654 °F |
| T-Air | | 101.7 °F |
| EA | | 27.2 % |
| CO (15) | | xxx |
| NO | | 91 ppm |
| NO2 | | 0.0 ppm |
| NOX | | 91 ppm |
| SO2 | | xxx |
| NO (15) | | 34 ppm |
| NOX (15) | | 34 ppm |
| SO2 (15 | | xxx |
| K lbs/hour | | |

**Signature:** Dana Gatta

NUTES AND THEN PRINT TEST RESULTS

UTES AND THEN PRINT TEST RESULTS

M TO THIS SHEET

## EMISSION TEST COLLEGE P

| Date: 5 FEB 24 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | | | |
| Recorded Test | | | |
| O2 | 14 | | |
| CO | 3 | | |
| Eff | 76 | | |
| CO2 | 4.6 | | |
| T-Stk | 364 | | |
| T-Air | 58.5 | | |
| EA | 182.6 | | |
| CO (15) | | | |
| NO | 20.4 | | |
| NO2 | 1.9 | | |
| NOX | 22.3 | | |
| SO2 | | | |
| NO (15) | 17 | | |
| NOX (15) | 19 | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:** Spencer Jones

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:42:11
Date: 02/05/24

HRSG 1

Fuel
PROP

| | |
|---|---|
| $O_2$ | 14.0 % |
| CO | 3 ppm |
| Eff | 76.3 % |
| $CO_2$ | 4.6 % |
| T-Stk | 364 °F |
| T-Air | 58.5 °F |
| EA | 182.6 % |
| CO(0) | 8 ppm |
| NO | 20.4 ppm |
| $NO_2$ | 1.9 ppm |
| NOx | 22.3 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.79 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:26:19
Date: 02/05/24

BOILER

Fuel
PROP

| | |
|---|---|
| $O_2$ | 3.6 % |
| CO | 6 ppm |
| Eff | 85.2 % |
| $CO_2$ | 11.4 % |
| T-Stk | 386 °F |
| T-Air | 83.9 °F |
| EA | 18.7 % |
| CO(0) | 7 ppm |
| NO | 58 ppm |
| $NO_2$ | 2.4 ppm |
| NOx | 61 ppm |
| NO(15) | 20 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 21 ppm |
| Flow | 0.78 LPM |

Comments:

| Date: 5 FEB 24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | 3.6 | | | |
| CO | 6 | | | |
| Eff | 85.2 | | | |
| CO2 | 11.4 | | | |
| T-Stk | 386 | | | |
| T-Air | 83.9 | | | |
| EA | 18.7 | | | |
| CO (15) | | | | |
| NO | 58 | | | |
| NO2 | 2.4 | | | |
| NOX | 61 | | | |
| SO2 | | | | |
| NO (15) | 20 | | | |
| NOX (15) | 21 | | | |
| SO2 (15 | | | | |
| K lbs/hour | | | | |

**Signature:** Spencer Jones

TES AND THEN PRINT TEST RESULTS

TES AND THEN PRINT TEST RESULTS

TO THIS SHEET

## EMISSION TEST COLLEGE PARK

| Date: 12 FEB 24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 7:05 | |
| Recorded Test | 7:20 | |
| O2 | 13.6 | |
| CO | 5 | |
| Eff | 77.5 | |
| CO2 | 4.8 | |
| T-Stk | 366 | |
| T-Air | 70.9 | |
| EA | 169.4 | |
| CO (15) | | |
| NO | 19.5 | |
| NO2 | 3.0 | |
| NOX | 22.5 | |
| SO2 | | |
| NO (15) | 16 | |
| NOX (15) | 18 | |
| SO2 (15 | | |
| Mega Watts | 7.8 | |
| KSCF/hour | 45 | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:56:13
Date: 02/12/24

Fuel B2
PROP

| | |
|---|---|
| $O_2$ | 3.9 % |
| CO | 5 ppm |
| Eff | 84.9 % |
| $CO_2$ | 11.2 % |
| T-Stk | 401 °F |
| T-Air | 93.8 °F |
| EA | 20.6 % |
| CO(0) | 6 ppm |
| NO | 51 ppm |
| $NO_2$ | 1.5 ppm |
| NOx | 52 ppm |
| NO(15) | 18 ppm |
| $NO_2$(15) | 1 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.78 LPM |

Comments:

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:20:10
Date: 02/12/24 HRSG1

Fuel
PROP

| | |
|---|---|
| $O_2$ | 13.6 % |
| CO | 5 ppm |
| Eff | 77.5 % |
| $CO_2$ | 4.8 % |
| T-Stk | 366 °F |
| T-Air | 70.9 °F |
| EA | 169.4 % |
| CO(0) | 14 ppm |
| NO | 19.5 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 22.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.79 LPM |

Comments:

| Date: 12 FEB 24 | BLR 2 | BLR 4 |
|---|---|---|
| Start Test | 7:41 | |
| Recorded Test | 7:56 | |
| O2 | 3.9 | |
| CO | 5 | |
| Eff | 84.9 | |
| CO2 | 11.2 | |
| T-Stk | 401 | |
| T-Air | 93.8 | |
| EA | 20.6 | |
| CO (15) | | |
| NO | 51 | |
| NO2 | 1.5 | |
| NOX | 52 | |
| SO2 | | |
| NO (15) | 18 | |
| NOX (15) | 18 | |
| SO2 (15 | | |
| K lbs/hour | 60.8 | |

**Signature:**

**WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

S AND THEN PRINT TEST RESULTS

O THIS SHEET

## EMISSION TEST COLLEGE P

| Date: 2/19/24 | GT 1 DB | GT 2 DB |
|---|---|---|
| Start Test | 7:09 | |
| Recorded Test | 7:24 | |
| O2 | 13.4 | |
| CO | 5 | |
| Eff | 77.6 | |
| CO2 | 4.9 | |
| T-Stk | 365 | |
| T-Air | 63.5 | |
| EA | 162.6 | |
| CO (15) | 13 | |
| NO | 20.6 | |
| NO2 | 3.0 | |
| NOX | 23.5 | |
| SO2 | | |
| NO (15) | 16 | |
| NOX (15) | 19 | |
| SO2 (15 | | |
| Mega Watts | 7.8 | |
| KSCF/hour | 84 | |

**Signature:**

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:58:00
Date: 02/19/24

B4

Fuel
PROP

| | |
|---|---|
| $O_2$ | 5.4 % |
| CO | 0 ppm |
| Eff | 81.2 % |
| $CO_2$ | 10.2 % |
| T-Stk | 521 °F |
| T-Air | 91.6 °F |
| EA | 31.5 % |
| CO(0) | 0 ppm |
| NO | 83 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 83 ppm |
| NO(15) | 32 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 32 ppm |
| Flow | 0.79 LPM |

Comments:

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:29:37
Date: 02/19/24

B2

Fuel
PROP

| | |
|---|---|
| $O_2$ | 3.8 % |
| CO | 0 ppm |
| Eff | 85.9 % |
| $CO_2$ | 11.3 % |
| T-Stk | 355 °F |
| T-Air | 88.5 °F |
| EA | 20.0 % |
| CO(0) | 0 ppm |
| NO | 52 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 52 ppm |
| NO(15) | 18 ppm |
| $NO_2$ (15) | 0 ppm |
| NOx(15) | 18 ppm |
| Flow | 0.76 LPM |

| Date: 2/19/24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 8:14 | 7:43 | | |
| Recorded Test | 8:29 | 7:58 | | |
| O2 | 3.8 | 5.4 | | |
| CO | 0 | 0 | | |
| Eff | 85.9 | 81.2 | | |
| CO2 | 11.3 | 10.2 | | |
| T-Stk | 355 | 521 | | |
| T-Air | 88.5 | 91.6 | | |
| EA | 20 | 31.5 | | |
| CO (15) | 0 | 0 | | |
| NO | 52 | 83 | | |
| NO2 | 0 | 0 | | |
| NOX | 52 | 83 | | |
| SO2 | | | | |
| NO (15) | 18 | 32 | | |
| NOX (15) | 18 | 32 | | |
| SO2 (15 | | | | |
| K lbs/hour | 48.42 | 30.64 | | |

**Signature:**

BACHARACH, INC.
PCA 400 GT1
SN: 18041087

Time: 07:24:48
Date: 02/19/24

Fuel
PROP

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 5 ppm |
| Eff | 77.6 % |
| $CO_2$ | 4.9 % |
| T-Stk | 365 °F |
| T-Air | 63.5 °F |
| EA | 162.6 % |
| CO(0) | 13 ppm |
| NO | 20.6 ppm |
| $NO_2$ | 3.0 ppm |
| NOx | 23.5 ppm |
| NO(15) | 16 ppm |
| $NO_2$ (15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.80 LPM |

## EMISSION TEST COLLEGE P

| Date: 26 FEB 24 | GT 1 DB | GT 2 DB | |
|---|---|---|---|
| Start Test | 7:21 | | |
| Recorded Test | 7:36 | | |
| O2 | 13.4 | | |
| CO | 4 | | |
| Eff | 77.8 | | |
| CO2 | 5 | | |
| T-Stk | 363 | | |
| T-Air | 65 | | |
| EA | 161.6 | | |
| CO (15) | | | |
| NO | 21.3 | | |
| NO2 | 2.9 | | |
| NOX | 24.1 | | |
| SO2 | | | |
| NO (15) | 17 | | |
| NOX (15) | 19 | | |
| SO2 (15 | | | |
| Mega Watts | | | |
| KSCF/hour | | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 08:16:25
Date: 02/26/24 B2

Fuel
PROP

| | |
|---|---|
| $O_2$ | 4.1 % |
| CO | 0 ppm |
| Eff | 85.9 % |
| $CO_2$ | 11.1 % |
| T-Stk | 357 °F |
| T-Air | 94.7 °F |
| EA | 22.3 % |
| CO(0) | 0 ppm |
| NO | 48.0 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 48.0 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 17 ppm |
| Flow | 0.85 LPM |

Comments:

Kpph-40

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:58:05
Date: 02/26/24 B4

Fuel
PROP

| | |
|---|---|
| $O_2$ | 7.7 % |
| CO | 0 ppm |
| Eff | 82.5 % |
| $CO_2$ | 8.7 % |
| T-Stk | 423 °F |
| T-Air | 89.4 °F |
| EA | 52.5 % |
| CO(0) | 0 ppm |
| NO | 68 ppm |
| $NO_2$ | 0.0 ppm |
| NOx | 68 ppm |
| NO(15) | 30 ppm |
| $NO_2$(15) | 0 ppm |
| NOx(15) | 30 ppm |
| Flow | 0.76 LPM |

| Date: 26 FEB 24 | BLR 2 | BLR 4 | | |
|---|---|---|---|---|
| Start Test | 8:01 | 7:43 | | |
| Recorded Test | 8:16 | 7:58 | | |
| O2 | 4.1 | 7.7 | | |
| CO | 0 | 0 | | |
| Eff | 85.9 | 82.5 | | |
| CO2 | 11.1 | 8.7 | | |
| T-Stk | 357 | 423 | | |
| T-Air | 94.7 | 89 | | |
| EA | 22.3 | 52.5 | | |
| CO (15) | | | | |
| NO | 48 | 68 | | |
| NO2 | | 0 | | |
| NOX | 48 | 68 | | |
| SO2 | | | | |
| NO (15) | 17 | 30 | | |
| NOX (15) | 17 | 30 | | |
| SO2 (15 | | | | |
| K lbs/hour | 40 | 30 | | |

**Signature:**

BACHARACH

BACHARACH, INC.
PCA 400
SN: 18041087

Time: 07:36:42
Date: 02/26/24 GT1

Fuel
PROP

| | |
|---|---|
| $O_2$ | 13.4 % |
| CO | 4 ppm |
| Eff | 77.8 % |
| $CO_2$ | 5.0 % |
| T-Stk | 363 °F |
| T-Air | 65.0 °F |
| EA | 161.6 % |
| CO(0) | 11 ppm |
| NO | 21.3 ppm |
| $NO_2$ | 2.9 ppm |
| NOx | 24.1 ppm |
| NO(15) | 17 ppm |
| $NO_2$(15) | 2 ppm |
| NOx(15) | 19 ppm |
| Flow | 0.77 LPM |

Comments: MW-7.8
Kpph-88

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/4/24 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 1331 | | | |
| Recorded Test | 1339 | | | |
| O2 | 14.4% | | | |
| CO | 3ppm | | | |
| Eff | 76.1% | | | |
| CO2 | 4.3% | | | |
| T-Stk | 375 °F | | | |
| T-Air | 82.0°F | | | |
| EA | 199.4% | | | |
| CO (15) | xxx | | | |
| NO | 17.9ppm | | | |
| NO2 | 2.2ppm | | | |
| NOX | 20.2ppm | | | |
| SO2 | xxx | | | |
| NO (15) | 16ppm | | | |
| NOX (15) | 18ppm | | | |
| SO2 (15 | xxx | | | |
| Mega Watts | 7.9 | | | |
| KSCF/hour | 86 | | | |

**Signature:** Dawn Sutton

| Date: 3/4/24 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 1348 | | | |
| Recorded Test | 1410 | | | |
| O2 | 5.8% | | | |
| CO | 0ppm | | | |
| Eff | 86.7% | | | |
| CO2 | 10.0% | | | |
| T-Stk | 308 °F | | | |
| T-Air | 98.9°F | | | |
| EA | 34.6% | | | |
| CO (15) | xxx | | | |
| NO | 49.2ppm | | | |
| NO2 | 0.0ppm | | | |
| NOX | 49.2ppm | | | |
| SO2 | xxx | | | |
| NO (15) | 19ppm | | | |
| NOX (15) | 19ppm | | | |
| SO2 (15 | xxx | | | |
| K lbs/hour | 24 | | | |

**Signature:** Dawn Sutton

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/11/24 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 10:50 | | | |
| Recorded Test | 10:57 | | | |
| O2 | 13.5% | | | |
| CO | 2ppm | | | |
| Eff | 77.7% | | | |
| CO2 | 4.9% | | | |
| T-Stk | 363°F | | | |
| T-Air | 64.5°F | | | |
| EA | 163.9% | | | |
| CO (15) | XXX | | | |
| NO | 24.2ppm | | | |
| NO2 | 2.3ppm | | | |
| NOX | 26.5ppm | | | |
| SO2 | XXX | | | |
| NO (15) | 19ppm | | | |
| NOX (15) | 21ppm | | | |
| SO2 (15 | XXX | | | |
| Mega Watts | 7.9 | | | |
| KSCF/hour | 50 | | | |

**Signature:** Dawn Sutter

| Date: 3/11/24 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 11:00 | | | |
| Recorded Test | 11:18 | | | |
| O2 | 3.5% | | | |
| CO | 12ppm | | | |
| Eff | 85.7% | | | |
| CO2 | 11.5% | | | |
| T-Stk | 357°F | | | |
| T-Air | 78.6°F | | | |
| EA | 18.5% | | | |
| CO (15) | XXX | | | |
| NO | 59ppm | | | |
| NO2 | 3.2ppm | | | |
| NOX | 62ppm | | | |
| SO2 | XXX | | | |
| NO (15) | 20ppm | | | |
| NOX (15) | 21ppm | | | |
| SO2 (15 | | | | |
| K lbs/hour | 54 | | | |

**Signature:** Dawn Sutter

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | | | | |
| Recorded Test | | | | |
| O2 | | | | |
| CO | | | | |
| Eff | | | | |
| CO2 | | | | |
| T-Stk | | | | |
| T-Air | | | | |
| EA | | | | |
| CO (15) | | | | |
| NO | | | | |
| NO2 | | | | |
| NOX | | | | |
| SO2 | | | | |
| NO (15) | | | | |
| NOX (15) | | | | |
| SO2 (15 | | | | |
| Mega Watts | | | | |
| KSCF/hour | | | | |

**Signature:** _____

| Date: 3/18/24 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 16:02 | 16:23 | | |
| Recorded Test | 16:22 | 16:43 | | |
| O2 | 3.6% | 5.6% | | |
| CO | 3ppm | 0ppm | | |
| Eff | 84.1% | 81.6% | | |
| CO2 | 11.4% | 10.1% | | |
| T-Stk | 429 °F | 512 °F | | |
| T-Air | 83.8 °F | 101.6 °F | | |
| EA | 18.6% | 32.9% | | |
| CO (15) | XXX | XXX | | |
| NO | 63ppm | 75ppm | | |
| NO2 | 2.9 ppm | 0.0 ppm | | |
| NOX | 66ppm | 75 ppm | | |
| SO2 | XXX | XXX | | |
| NO (15) | 22 ppm | 29 ppm | | |
| NOX (15) | 23ppm | 29 ppm | | |
| SO2 (15 | XXX | XXX | | |
| K lbs/hour | 74 | 41 | | |

**Signature:** Dana Sutton

**Boiler**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

## EMISSION TEST COLLEGE PARK ENERGY

| Date: 3/25/24 | GT 1 DB | GT 2 DB | GT1 | GT2 |
|---|---|---|---|---|
| Start Test | 07:54 | | | |
| Recorded Test | 08:01 | | | |
| O2 | 16.2% | | | |
| CO | 1 ppm | | | |
| Eff | xxx | | | |
| CO2 | xxx | | | |
| T-Stk | 391 °F | | | |
| T-Air | 65.3 °F | | | |
| EA | xxx | | | |
| CO (15) | xxx | | | |
| NO | 11.0 ppm | | | |
| NO2 | 2.2 ppm | | | |
| NOX | 13.3 ppm | | | |
| SO2 | xxx | | | |
| NO (15) | xxx | | | |
| NOX (15) | xxx | | | |
| SO2 (15 | xxx | | | |
| Mega Watts | 7 | | | |
| KSCF/hour | 122 | | | |

**Signature:** Darin Sutton

| Date: 3/25/24 | BLR 2 | BLR 4 | BLR 2 | BLR 4 |
|---|---|---|---|---|
| Start Test | 08:07 | 08:36 | | |
| Recorded Test | 08:35 | 09:06 | | |
| O2 | 4.4% | 4.9% | | |
| CO | 0ppm | 0ppm | | |
| Eff | 85.9% | 81.2% | | |
| CO2 | 10.9% | 10.6% | | |
| T-Stk | 347 °F | 554 °F | | |
| T-Air | 87.5 °F | 111.6 °F | | |
| EA | 24.4% | 27.8% | | |
| CO (15) | xxx | 0ppm | | |
| NO | 59 ppm | 89 ppm | | |
| NO2 | 0.0ppm | 0.0ppm | | |
| NOX | 59 ppm | 89 ppm | | |
| SO2 | xxx | xxx | | |
| NO (15) | 21 ppm | 33 ppm | | |
| NOX (15) | 21 ppm | 33 ppm | | |
| SO2 (15 | xxx | xxx | | |
| K lbs/hour | 38 | 49 | | |

**Signature:** Darin Sutton

**Boiler:** RECORD TIME PROBE IS INSERTED (Start), **WAIT 15 MINUTES** AND THEN PRINT TEST RESULTS

**GT**: RECORD TIME PROBE IS INSERTED (Start), **WAIT 3-5 MINUTES** AND THEN PRINT TEST RESULTS

WHEN FINISHED TESTING ATTACH FORM TO THIS SHEET

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

Seneca Building
4716 Pontiac Street, Suite 0103
College Park, MD 20742
301.405.3960 TEL 301.314.9294 FAX

July 15, 2024

Dakota Blum
Regulatory and Compliance Engineer
Maryland Department of the Environment
Air Quality Compliance Program, Suite #715
1800 Washington Boulevard
Baltimore, MD 21230-1720

Air Enforcement Division Director
Air Enforcement Branch (3AT20)
U.S. Environmental Protection Agency Region III
1650 Arch Street
Philadelphia, PA 19103-2029

**RE: University of Maryland, College Park (Permit No. 24-033-00010)**

Dear Mr. Blum:

I am writing with respect to the above-referenced permit, issued to the University of Maryland and the Maryland Economic Development Corporation. In accordance with the permit's Plant-Wide Reporting Requirements, Conditions 1.5, 2.5, and 3.5 in Tables IV-1, 2 and 3, the enclosed quarterly air quality report is being submitted for the period of April 1, 2024, through June 30, 2024.

In January, it was discovered that the natural gas supply flow meter for Boiler #2 was malfunctioning. The meter was found to be working intermittently, occasionally functioning and recording gas usage, which ultimately delayed the repair of the unit. As of July 12, 2024, the meter is believed to be fully operational. To estimate the monthly natural gas usage for Boiler #2 for the quarter, we subtracted the sum of the natural gas sub-meters for the other units from the monthly total from the main gas meter for the building.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or require any additional information, please feel free to contact me at (301) 405-3163.

Sincerely,

Jason L. Baer
Assistant Director
Office of Environmental Affairs
University of Maryland – Department of Environmental Safety, Sustainability, and Risk

Enclosures
cc: Anthony Grancitelli, CPE (electronic copy)
John Genakos, MEDCO (electronic copy)

**University of Maryland- Combined Heating and Power Plant Facility April 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 590.20 | 0.00 | 72279.93 | 0.00 | | 837,990,000 | 0 | 857,808 | 0 | 0.0361 | 0.0000 | 0.0361 | 4.3729 | 0.0000 | 4.3729 | 0.1084 | 0.0000 | 0.1084 | 0.2168 | 0.0000 | 0.2168 | 0.1771 | 0.0000 | 0.1771 | 0.1771 | 0.0000 | 0.1771 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 88,190,000 | 0 | 90,276 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 579.40 | | 24332.16 | | | 234,840,000 | | 240,394 | | 0.0656 | | 0.0656 | 0.1582 | | 0.1582 | 0.1217 | | 0.1217 | 0.0072 | | 0.0072 | 0.0239 | | 0.0239 | 0.0239 | | 0.0239 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 1,920,000 | | 1,965 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 363.20 | 2.50 | 50054.44 | 170.02 | | | | | | 0.0123 | 0.0000 | 0.0123 | 2.2524 | 0.0136 | 2.2661 | 0.1001 | 0.0001 | 0.1002 | 0.0476 | 0.0007 | 0.0482 | 0.0273 | 0.0003 | 0.0275 | 0.0273 | 0.0003 | 0.0275 |
| Boiler 4 | 597.60 | 2.40 | 9901.77 | 133.52 | | | | | | 0.0024 | 0.0001 | 0.0025 | 0.5446 | 0.0093 | 0.5539 | 0.0049 | 0.0001 | 0.0050 | 0.0094 | 0.0005 | 0.0099 | 0.0148 | 0.0001 | 0.0149 | 0.0148 | 0.0001 | 0.0149 |
| Emerg. Gen. | | 0.00 | | 0.00 | 0.3 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 3.80 | 0.20 | 50.16 | 0.00 | | | | | | 0.0001 | 0.0000 | 0.0001 | 0.0009 | 0.0000 | 0.0009 | 0.0009 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.0003 | 0.0000 | 0.0003 | 0.0003 | 0.0000 | 0.0003 |
| Emissions Total | | | | | | | | | | 0.1165 | 0.0001 | 0.1166 | 7.3290 | 0.0229 | 7.3520 | 0.3360 | 0.0001 | 0.3362 | 0.2810 | 0.0012 | 0.2822 | 0.2433 | 0.0004 | 0.2437 | 0.2433 | 0.0004 | 0.2437 |

*In January, it was discovered that the natural gas supply flow meter for Boiler #2 was malfunctioning. The meter was ultimately determined to be working intermittently, occasionally functioning and recording gas usage, which delayed the repair of the unit. As of July 12, 2024, the meter is believed to be fully operational. To estimate the natural gas usage for Boiler #2, we subtracted the sum of the natural gas sub-meters for the other fuel-burning units from the monthly total from the main gas meter for the building.

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 2.01 | 90.23 | 10.46 | 3.55 | 5.22 | 5.22 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility May 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 115.90 | 0.00 | 13809.04 | 0.00 | | 769,670,000 | 0 | 787,873 | 0 | 0.0069 | 0.0000 | 0.0069 | 0.8354 | 0.0000 | 0.8354 | 0.0207 | 0.0000 | 0.0207 | 0.0414 | 0.0000 | 0.0414 | 0.0338 | 0.0000 | 0.0338 | 0.0338 | 0.0000 | 0.0338 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 35,040,000 | 0 | 35,869 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 113.10 | | 4115.07 | | | 229,560,000 | | 234,989 | | 0.0111 | | 0.0111 | 0.0267 | | 0.0267 | 0.0206 | | 0.0206 | 0.0012 | | 0.0012 | 0.0040 | | 0.0040 | 0.0040 | | 0.0040 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 709.70 | 0.00 | 96414.52 | 0.00 | | | | | | 0.0236 | 0.0000 | 0.0236 | 4.3387 | 0.0000 | 4.3387 | 0.1928 | 0.0000 | 0.1928 | 0.0916 | 0.0000 | 0.0916 | 0.0525 | 0.0000 | 0.0525 | 0.0525 | 0.0000 | 0.0525 |
| Boiler 4 | 361.30 | 0.00 | 11611.26 | 0.00 | | | | | | 0.0028 | 0.0000 | 0.0028 | 0.6386 | 0.0000 | 0.6386 | 0.0057 | 0.0000 | 0.0057 | 0.0110 | 0.0000 | 0.0110 | 0.0174 | 0.0000 | 0.0174 | 0.0174 | 0.0000 | 0.0174 |
| Emerg. Gen. | | 0.00 | | 0.000 | 0.3 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 638.80 | 0.00 | 12857.04 | 0.00 | | | | | | 0.0257 | 0.0000 | 0.0257 | 0.2314 | 0.0000 | 0.2314 | 0.2411 | 0.0000 | 0.2411 | 0.0039 | 0.0000 | 0.0039 | 0.0681 | 0.0000 | 0.0681 | 0.0681 | 0.0000 | 0.0681 |
| Emissions Total | | | | | | | | | | 0.0702 | 0.0000 | 0.0702 | 6.0709 | 0.0000 | 6.0709 | 0.4809 | 0.0000 | 0.4809 | 0.1491 | 0.0000 | 0.1491 | 0.1758 | 0.0000 | 0.1758 | 0.1758 | 0.0000 | 0.1758 |

*In January, it was discovered that the natural gas supply flow meter for Boiler #2 was malfunctioning. The meter was ultimately determined to be working intermittently, occasionally functioning and recording gas usage, which delayed the repair of the unit. As of July 12, 2024, the meter is believed to be fully operational. To estimate the natural gas usage for Boiler #2, we subtracted the sum of the natural gas sub-meters for the other fuel-burning units from the monthly total from the main gas meter for the building.

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.93 | 84.84 | 10.26 | 3.22 | 5.04 | 5.04 |
| | OK | OK | OK | OK | OK | OK |

**University of Maryland- Combined Heating and Power Plant Facility June 2024**

| Equipment Name | Run Hours (Gas) | Run Hours (Oil) | Fuel Usage (mmBtu/month) | | Year-to-Date Operating Hours (hrs/yr) | 12-month rolling Fuel Usage scf/12-months | gal/12-months | mmbtu/12-months | | VOC tons/month | | | NOx tons/month | | | CO tons/month | | | $SO_2$ tons/month | | | $PM_{10}$ tons/month | | | PM tons/month | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NG | FO | FO | NG | FO | NG | FO | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total | NG | #2 FO | Total |
| Turbine 1 | 0.00 | 0.00 | 0.00 | 0.00 | | 703,580,000 | 0 | 720,220 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Turbine 2 | 0.00 | 0.00 | 0.00 | 0.00 | | 0 | 0 | 0 | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Duct Burner 1 | 0.00 | | 0.00 | | | 213,350,000 | | 218,396 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Duct Burner 2 | 0.00 | | 0.00 | | | 0 | | 0 | | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 |
| Boiler 2* | 671.90 | 0.00 | 80555.11 | 0.00 | | | | | | 0.0197 | 0.0000 | 0.0197 | 3.6250 | 0.0000 | 3.6250 | 0.1611 | 0.0000 | 0.1611 | 0.0765 | 0.0000 | 0.0765 | 0.0439 | 0.0000 | 0.0439 | 0.0439 | 0.0000 | 0.0439 |
| Boiler 4 | 99.10 | 0.00 | 2076.99 | 0.00 | | | | | | 0.0005 | 0.0000 | 0.0005 | 0.1142 | 0.0000 | 0.1142 | 0.0010 | 0.0000 | 0.0010 | 0.0020 | 0.0000 | 0.0020 | 0.0031 | 0.0000 | 0.0031 | 0.0031 | 0.0000 | 0.0031 |
| Emerg. Gen. | | 0.00 | | 0.000 | 0.3 | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 |
| Mobile Boiler | 644.60 | 0.00 | 12843.74 | 0.00 | | | | | | 0.0257 | 0.0000 | 0.0257 | 0.2312 | 0.0000 | 0.2312 | 0.2408 | 0.0000 | 0.2408 | 0.0039 | 0.0000 | 0.0039 | 0.0680 | 0.0000 | 0.0680 | 0.0680 | 0.0000 | 0.0680 |
| Emissions Total | | | | | | | | | | 0.0459 | 0.0000 | 0.0459 | 3.9704 | 0.0000 | 3.9704 | 0.4030 | 0.0000 | 0.4030 | 0.0824 | 0.0000 | 0.0824 | 0.1150 | 0.0000 | 0.1150 | 0.1150 | 0.0000 | 0.1150 |

*In January, it was discovered that the natural gas supply flow meter for Boiler #2 was malfunctioning. The meter was ultimately determined to be working intermittently, occasionally functioning and recording gas usage, which delayed the repair of the unit. As of July 12, 2024, the meter is believed to be fully operational. To estimate the natural gas usage for Boiler #2, we subtracted the sum of the natural gas sub-meters for the other fuel-burning units from the monthly total from the main gas meter for the building.

| Title V 12 Month Rolling Emission Totals | VOC | NOx | CO | $SO_2$ | $PM_{10}$ | PM |
|---|---|---|---|---|---|---|
| All Power Plant Equipment (combined) | tons/year | tons/year | tons/year | tons/year | tons/year | tons/year |
| Limit | 19.8 | 177 | 130 | 33.5 | 19 | 18.7 |
| Actual | 1.86 | 82.00 | 10.21 | 2.97 | 4.90 | 4.90 |
| | OK | OK | OK | OK | OK | OK |

COMMISSIONERS

FREDERICK H. HOOVER, JR.
CHAIR

MICHAEL T. RICHARD
KUMAR P. BARVE
BONNIE A. SUCHMAN

STATE OF MARYLAND

# PUBLIC SERVICE COMMISSION

**#4, 9/4/24 AM; ML#s 309882 and 311910, IR-7189**

September 5, 2024

Susan Corry
University of Maryland College Park
7901 Regents Drive
2119 Thomas V. Miller Jr. Administration Bldg.
College Park, MD 20742-5035
scorry@umd.edu

Dear Ms. Corry:

The Commission has reviewed the request for a Certificate of Public Convenience and Necessity Exemption filed on May 24, 2024 by University of Maryland College Park to construct a natural gas and oil-fired electric generator. Additional information was filed on August 26, 2024.

After considering this matter at the September 4, 2024 Administrative Meeting, the Commission approved the application.

By Direction of the Commission,

*/s/ Andrew S. Johnston*

Andrew S. Johnston
Executive Secretary

ASJ/st

UNIVERSITY OF MARYLAND

Jason Baer <jbaer123@umd.edu>

# UMD NextGen Project: MDE Zoning Inquiry

1 message

**Tracey E Skinner** <tracey@umd.edu> Fri, Jan 10, 2025 at 4:35 PM
To: Jason Baer <jbaer123@umd.edu>

Jason,

Hello. You asked the Office of General Counsel ("OGC") to address the following request of the Maryland Department of Environment ("MDE"): As part of the air permitting process for the NextGen project, MDE has requested documentation that "the local zoning authority confirms that the NextGen project is allowed and needed." MDE's request arose not from new construction, renovation or the relocation of UMD's long-existing central energy plant, but from UMD's application for a new air quality permit relating to the replacement of the existing energy equipment with new and more efficient energy equipment. In sum, zoning regulations generally do not apply to UMD, and zoning regulations would not apply to the replacement of equipment housed in the interior of an existing building.

As we discussed, UMD, as a State entity, is exempt from local zoning laws and regulations. In brief, in a 1993 Opinion of the Attorney General, (78 Op. Att'y Gen. 58), it was explained, "[n]umerous Opinions of the Attorney General affirm the fundamental doctrine that operations of State government are not subject to control by local governments absent an express statutory provision that they shall be so controlled. This immunity derives from the sovereign character of the State . . . . This principle is frequently encountered in controversies associated with land use. It is well established under Maryland law that when the State uses its property for governmental purposes, county and municipal zoning codes are not applicable, unless the General Assembly's grant of zoning authority to the county includes an express statement or a clear implication that State property will be subject to local control. The State's exemption from county zoning laws extends to its agencies and instrumentalities." Id. at 60-61 (citations omitted). For additional support of this statement, please reference the attached summary of 2019 from OGC.

Notwithstanding the zoning exemption as cited above, when applicable, UMD complies with the Mandatory Referral Review Process as outlined in Md. Land Use Code Ann. §§20-101 et seq. Section 20-301 (attached) lists the type of activities that must be reviewed by the Maryland-National Capital Parks and Planning Commission. UMD's current activity of the replacement of existing equipment inside UMD's long-existing and operating central energy plant, would not come under any of the listed activities under Section 20-301. The central energy plant (UMD Building #001) has existed and been in operation since 1931, and there will be no change to its location, character, grade and extent of the activity.

With the above summary, and considering that the Public Service Commission has review and approval authority, under State law, for energy projects and issued the attached Certificate of Public Convenience and Necessity Exemption for UMD's replacement of energy equipment, I think that MDE's request should be satisfied.

Regards,

Tracey Skinner
Sr. Associate General Counsel & Real Estate Practice Lead
tracey@umd.edu
**Direct: 301-405-5644** Office: 301-405-4945
Office of General Counsel
University of Maryland, College Park
2117 Seneca Bldg., 4716 Pontiac Street, College Park, MD 20742

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**3 attachments**

**Zoning Summary re UMD exemption from local zoning laws (2019 RDB).docx**
19K

**MD Land Use Cd. §20-301 Approval (cpd 01.10.25).pdf**
149K

**2024.09.05 PSC CPCN Exemptn Apprvl (Appndx G).pdf**
50K

In response to the request for support that the University of Maryland ("UMD") is not subject to local zoning regulations, the following is provided: UMD, as an instrumentality of the Maryland State government, generally is not subject to local zoning requirements. Unless expressly stated, UMD is not subject to local zoning regulations. See People's Counsel for Balt. County v. Surina, 400 Md. 662 (2007) "We held that, as a "territorial division of the State, created and organized for public political purposes connected with the administration of state government, and specially charged with the administration and superintendence of the local affairs of the community," the County enjoyed exemption from its zoning regulations, absent evidence of a contrary intent expressed there, when the proposed use was in furtherance of its governmental, as opposed to corporate or proprietary, functions. *Glascock,* 321 Md. at 122, 581 A.2d at 824 (citations omitted); *see also Pan Am. Health Org. v. Montgomery County,*338 Md. 214, 226, 657 A.2d 1163, 1169 (1995) ("[T]he common law provides that [the State] is not bound by local zoning ordinances unless the General Assembly clearly indicates a contrary intent. Local governments, as instrumentalities of the State, enjoy this same common-law immunity.") (citations omitted). Thus, we extended the common-law rule from *City of Baltimore v. State,* that a State enjoys governmental immunity from its own, and its municipalities', zoning laws, to include in the exemption the counties as political subdivisions of the State."

Although generally exempt from local zoning regulations, UMD is subject to the Mandatory Referral Review. The entire area of Prince George's County ("PGC"), with the exception of the City of Laurel, is within the Maryland-Washington Regional District and commissioners from PGC are designated as the PGC Planning Board. The PGC Planning Board is responsible for planning, subdivision and zoning functions within the district. See Md. Land Use Code Anno. §20-101, §§20-201 and 20-202. Subject to §§ 20-303 and 20-304 of this subtitle, a public board, public body, or public official may not conduct any of the following activities in the regional district unless the proposed location, character, grade, and extent of the activity is referred to and approved by the Commission. The activities listed in Section 20-301 are:

**(1)** acquiring or selling land;

**(2)** locating, constructing, or authorizing:

**(i)** a road;

**(ii)** a park;

**(iii)** any other public way or ground;

**(iv)** a public building or structure, including a federal building or structure; or

**(v)** a publicly owned or privately owned public utility; or

**(3)** changing the use of or widening, narrowing, extending, relocating, vacating, or abandoning any facility listed in item (2) of this section. (Md. Land Use Code Ann. § 20-301. Also see the Zoning Regulations of Prince George's County Code of Ordinances, Subtitle 27.)

In Pan Am. Health Org. v. Montgomery County, 338 Md. 214 (1995) Public is defined- The word "public" encompasses only the federal, State and local governments. The Mandatory Referral Review statute "sets forth a method through which certain public organizations may obtain approval for a project without having to go through local zoning review." Wash. Gas Light Co. v. Prince George's County Council, 711 F.3d 412 (2013) citing Pan Am. Health Org. v. Montgomery County, 338 Md. 214, 657 A.2d 1163, 1168 (Md. 1995). While UMD is subject to the Mandatory Referral Review, the approval/ recommendation given by the Commission is not binding. UMD may decide to overrule the disapproval of the Commission and proceed with the activity as proposed. See Md. Land Use Code Ann. § 20-303.

## Cases

Pan Am. Health Org. v. Montgomery County, 338 Md. 214 (1995) ..... 2
People's Counsel for Balt. County v. Surina, 400 Md. 662 (2007) ..... 1
Wash. Gas Light Co. v. Prince George's County Council, 711 F.3d 412 (2013) ..... 2

## Statutes

Md. Land Use Code Anno. ..... 1

## Other Authorities

Zoning Regulations of Prince George's County Code of Ordinances, Subtitle 27 ..... 2

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

**AIR AND RADIATION ADMINISTRATION**

**Privilege Log**

The following confidential business information has been withheld from the public copy of the permit application:

- Certain emissions calculations and supporting data
- Workers' Compensation account information
- Manufacturer/vendor specifications for equipment to be installed

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

**AIR AND RADIATION ADMINISTRATION**
**APPLICATION FOR A PERMIT TO CONSTRUCT**

**SUPPLEMENT TO**
**DOCKET #03-25**

COMPANY: University of Maryland

LOCATION: 7743 Baltimore Ave., College Park, MD 20740

APPLICATION: Permanent power and steam generating units.

| ITEM | DESCRIPTION |
|---|---|
| 1 | Notice of Tentative Determination, Public Hearing, and Opportunity to Submit Written Comments |
| 2 | Fact Sheet and Tentative Determination |
| 3 | Draft Permit to Construct and Conditions |
| 4 | Supplemental Information Reference List |
| 5 | Privilege Log |

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**
**AIR AND RADIATION ADMINISTRATION**

**NOTICE OF TENTATIVE DETERMINATION, PUBLIC HEARING, AND OPPORTUNITY TO SUBMIT WRITTEN COMMENTS**

**FIRST NOTICE**

The Department of the Environment, Air and Radiation Administration (ARA) has completed its review of an application for a Permit to Construct submitted by the University of Maryland College Park on January 15, 2025 for the installation of permanent power and steam generating units. The proposed installation will be located at 7743 Baltimore Ave, College Park, MD 20740.

The issuance of the Permit-to-Construct for this facility will be the subject of a Public Hearing to be held on, 2025 from 6:30-8:00 PM at the University of Maryland, Seneca Building, Room 0110, 4716 Pontiac Street, College Park, Maryland 20740.

Pursuant to Section 1-604, of the Environment Article, Annotated Code of Maryland, the Department has made a tentative determination that the Permit-to-Construct can be issued. A final determination on issuance of the permit will only be made after review of all pertinent information presented at the public hearing or received in written comments. Copies of the Department's tentative determination, the application, the draft permit to construct with conditions, and other supporting documents are available for public inspection on the Department's website. Look for Docket #03-25 at the following link:

https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/index.aspx

In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the project is located. The EJ Score, expressed as a statewide percentile, was shown to be 82, which the Department has verified. This score represents a combined measure of pollution and the potential vulnerability of a population to the effects of pollution. The Department's review of the factors contributing to the score is included in the tentative determination that is available for public inspection.

Persons who wish to make a statement concerning this application at the hearing are requested to provide the Department with a copy of their statement. In lieu of oral statements at the hearing, written comments may be submitted at the time of the hearing or to the Department no later than November 10, 2025.

Interested persons may request an extension to the public comment period. The extension request must be submitted in writing and must be received by the Department no later than November 10, 2025. The public comment period may only be extended one time for a 60-day period.

All requests for an extension to the public comment period and all written comments should be directed to the attention of Ms. Shannon Heafey, by email to shannon.heafey@maryland.gov or by mail to the Air and Radiation Administration, 1800 Washington Boulevard, Baltimore, Maryland 21230.

The Department will provide an interpreter for deaf and hearing impaired persons provided that a request is made for such service at least ten (10) days prior to the hearing.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

**MARYLAND DEPARTMENT OF ENVIRONMENT**
**AIR AND RADIATION ADMINISTRATION**

# FACT SHEET AND TENTATIVE DETERMINATION
# UNIVERSITY OF MARYLAND COLLEGE PARK

## PROPOSED INSTALLATION OF PERMANENT POWER AND STEAM GENERATING UNITS

## I. INTRODUCTION

The Maryland Department of the Environment (the "Department") received an application from the University of Maryland College Park on January 15, 2025 for a Permit to Construct for the installation of permanent power and steam generating units. The proposed installation will be located at 7743 Baltimore Ave., College Park, MD 20740.

A notice was placed in The Prince George's Post on March 27, 2025 and April 3, 2025 announcing a scheduled informational meeting to discuss the permit to construct application. The informational meeting was held on April 10, 2025 at the University of Maryland, Seneca Building, Room 0110, 4716 Pontiac Street, College Park, Maryland 20740.

As required by law, all public notices were also provided to elected officials in all State, county, and municipality legislative districts located within a one mile radius of the facility's property boundary.

The Department has reviewed the application and has made a tentative determination that the proposed facility is expected to comply with all applicable air quality regulations. A public hearing has been scheduled for September 24, 2025 from 6:30-8:00 PM at the University of Maryland, Seneca Building, Room 0110, 4716 Pontiac Street, College Park, Maryland 20740 to provide interested parties an opportunity to comment on the Department's tentative determination and draft permit conditions, and/or to present other pertinent concerns about the proposed facility. Notices concerning the date, time and location of the public hearing will be published in the legal section of a newspaper with circulation in general area of the proposed facility. Interested parties may also submit written comments.

If the Department does not receive any comments that are adverse to the tentative determination, the tentative determination will automatically become a final determination. If adverse comments are received, the Department will review the comments, and will then make a final determination with regard to issuance or denial of the permit. A notice of final determination will be published in a newspaper of general circulation in the affected area. The final determination may be subject to judicial review pursuant to Section 1-601 of the Environment Article, Annotated Code of Maryland.

## II. CURRENT STATUS AND PROPOSED INSTALLATION

### A. Current Status

The University of Maryland (UMD) is primarily an academic institution where most of the equipment is used for either power generation or utilities. Utility use includes heating and cooling for campus housing, offices, instructional buildings, and laboratories. Primary power generation comes from the central energy plant (CEP) facility operated by UMD. The facility also operates emergency generator sets for emergency power generation as needed, charbroilers, and other various boilers, heaters, and furnaces. UMD is covered under an existing Title V – Part 70 Operating Permit issued on December 13, 2022 and expiring on September 30, 2027.

### B. Proposed Installation

UMD is proposing to install the following equipment at it's CEP:

- two (2) Rentech natural gas/No. 2 fuel oil fired boilers each rated at 182.09 MMBtu/hr. and equipped with an integrated burner capable of being turned down to 9.25 MMBtu/hr. (Pilot Mode), Zeeco low $NO_X$ burners and flue gas recirculation;
- one (1) Solar Titan natural gas/No.2 fuel oil fired 171.9 MMBtu/hr. [16.5 MWe - 23,470 hp] combustion turbine equipped with a heat recovery steam generator (HRSG) and supplemental Cleaver Brooks 92 MMBtu/hr. natural-gas fired duct burner; and
- one (1) Kohler (1) diesel-fired emergency generator rated at 1,750 kW (2,346 hp).

The current CEP includes equipment that has been in service for 20 to 50+ years and has surpassed its useful life span. Continued use of this CEP creates expensive inefficiencies, a loss of 38 million gallons of water annually through steam leaks, more frequent interruptions to essential campus operations, wasted energy, and extensive maintenance. This equipment will be decommissioned. The new CEP will provide reliable, efficient, affordable and sustainable energy for the University and meet its growing demand for steam over the next 30+ years. The new equipment will provide sufficient redundancy to allow the CEP to reliably meet demand.

## III. APPLICABLE REGULATIONS

The proposed installation is subject to all applicable Federal and State air quality control regulations, including, but not limited to the following:

(a) 40 CFR Subpart Db for Industrial Commercial Institutional Steam Generating Units

(b) 40 CFR Subpart KKKK for Stationary Combustion Turbines

(c) 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

(d) COMAR 26.11.02.19C & D, which require that the Permittee submit to the Department annual certifications of emissions, and that the Permittee maintain sufficient records to support the emissions information presented in the submittals.

(e) COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

(f) COMAR 26.11.01.07C, which requires that the Permittee report to the Department occurrences of excess emissions.

(g) COMAR 26.11.09.05, which states that a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form.

(h) COMAR 26.11.09.07A(2), which limits the sulfur content of distillate fuel oils to not more than 0.3 percent by weight.

(i) COMAR 26.11.09.08, which outlines requirements for the control of NOx emissions for major stationary sources.

## IV. GENERAL AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six (6) criteria pollutants, i.e., sulfur dioxide, particulate matter, carbon monoxide, nitrogen dioxide, ozone, and lead. The primary standards were established to protect public health, and the secondary standards were developed to protect against non-health effects such as damage to property and vegetation.

The Department utilizes a statewide air monitoring network, operated in accordance with EPA guidelines, to measure the concentrations of criteria pollutants in Maryland's ambient air. The measurements are used to project statewide ambient air quality, and currently indicate that Prince George's County complies with the NAAQS for sulfur dioxide, particulate matter, carbon monoxide, nitrogen dioxide, and lead.

Ground level ozone continues to present a problem for the entire Washington metropolitan area, which is classified as a non-attainment area for ozone. The primary contributors to the formation of ozone are emissions of oxides of nitrogen, primarily from combustion equipment, and emissions of Volatile Organic Compounds (VOC) such as paint solvents and gasoline vapors.

Prince George's County is included in the non-attainment area for ozone.

With regard to toxic air pollutants (TAPs), screening levels (i.e., acceptable ambient concentrations for toxic air pollutants) are generally established at 1/100 of allowed worker exposure levels (TLVs)[1]. The Department has also developed additional screening levels for carcinogenic compounds. The additional screening levels are established such that continuous exposure to the subject TAP at the screening level for a period of 70 years is expected to cause an increase in lifetime cancer risk of no more than 1 in 100,000.

## V. ENVIRONMENTAL JUSTICE ANALYSIS

The concept behind the term environmental justice (EJ) is that all Maryland residents and communities should have an equal opportunity to enjoy an enhanced quality of life. How to assess whether equal protection is being applied is the challenge.

Communities surrounded by a disproportionate number of polluting facilities puts residents at a higher risk for health problems from environmental exposures. It is important that residents who may be adversely affected by a proposed source be aware of the current environmental issues in their community in order to have meaningful involvement in the permitting process. Resources may be available from government and private entities to ensure that community health is not negatively impacted by a new source located in the community.

The Maryland General Assembly passed HB 1200, effective October 1, 2022, that adds to MDE's work into our mission to help overburdened and underserved communities with environmental issues. In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the proposed source is located. The EJ Score, expressed as a statewide percentile, was shown to be 82 which the Department has verified. This score represents a combined measure of pollution and the potential vulnerability of a population to the effects of pollution.

An EJ Score of 82 indicates that the proposed installation is located in an area that is disproportionately impacted by pollution resulting in a higher risk of health problems from environmental exposures. As a result, additional community outreach prior to reviewing the permit application was conducted by UMD in order to ensure that residents were afforded broader opportunities to participate in the permit process and understand the impacts that the proposed installation may have on them and the community.

Prior to submitting the application UMD formed a NextGen Advisory Group and communicated the project details to internal stakeholders such as the University Cabinet and Senate, the SGA and SGA Sustainability Committee, and the UMD Sustainability Council. The applicant made

[1] TLVs are threshold limit values (exposure limits) established for toxic materials by the American Conference of Governmental Industrial Hygienists (ACGIH). Some TLVs are established for short-term exposure (TLV – STEL), and some are established for longer-term exposure (TLV – TWA), where TWA is an acronym for time-weight average.

announcements via the UMD Office of Marketing and Communications Maryland Today News Publication and presented the project to the College Park Mayor and City Council. UMD Created a website for the project and continues to update it throughout the process here: https://facilities.umd.edu/projects-programs/nextgen-energy-program

Finally, UMD reached out to additional interested parties provided by the Department and arranged for a Spanish language translator to be present at the informational meeting to provide translation services as needed.

## VI. COMPLIANCE DEMONSTRATION AND ANALYSIS

The proposed installation must comply with all State imposed emissions limitations and screening levels, as well as the NAAQS. The Department has conducted an engineering and air quality review of the application. The emissions were projected based on vendor data, manufacturer emission guarantees, and EPA emission factors.

**A.** **Estimated Emissions** - The maximum emissions of air pollutants of concern from the proposed installation are listed in Table I. The new Central Energy Plant will result in an overall decrease in emissions of oxides of nitrogen and sulfur dioxide.

**B.** **Compliance with National Ambient Air Quality Standards -** The maximum ground level concentrations for carbon monoxide and particulate matter based on the increase in those pollutant emissions are listed in column 2 of Table II. The combined impact of the projected contribution from the proposed installation and the ambient background concentration for each pollutant shown in column 3 of Table II is less than the NAAQS for each pollutant shown in column 4.

**C.** **Compliance with Air Toxics Regulations** – Toxic air pollutant emissions from fuel burning equipment are minimal and exempt from meeting State Air Toxics Regulations per COMAR 26.11.15.03B. The installation is also not a major source of federally regulated hazardous air pollutants.

## VII. TENTATIVE DETERMINATION

Based on the above information, the Department has concluded that the proposed installation will comply with all applicable Federal and State air quality control requirements. In accordance with the Administrative Procedure Act, Department has made a tentative determination to issue the Permit to Construct.

Enclosed with the tentative determination is a copy of the draft Permit to Construct.

**TABLE I**
**PROJECTED MAXIMUM EMISSIONS FROM THE NEW CENTRAL ENERGY PLANT**

| POLLUTANT | PROJECTED MAXIMUM EMISSIONS FROM THE NEW PLANT (tons/year) | PROJECTED INCREASE/DECREASE FROM REPLACEMENT OF EXISTING PLANT (tons/year) |
|---|---|---|
| Nitrogen Dioxide ($NO_2$) | 111.16 | -7.5 |
| Sulfur Dioxide ($SO_2$) | 5.1 | -0.03 |
| Carbon Monoxide (CO) | 102.9 | 94.3 |
| Volatile Organic Compounds (VOC) | 13.2 | 13.2 |
| Particulate Matter ($PM_{10}$) | 13.9 | 8.4 |
| Particulate Matter ($PM_{2.5}$) | 13.9 | 8.3 |

**TABLE II**
**PROJECTED IMPACT OF EMISSIONS OF CRITERIA POLLUTANTS FROM THE PROPOSED INSTALLATION ON AMBIENT AIR QUALITY**

| POLLUTANTS | MAXIMUM OFF-SITE GROUND LEVEL CONCENTRATIONS CAUSED BY EMISSIONS FROM PROPOSED PROCESS ($\mu g/m^3$) | BACKGROUND AMBIENT AIR CONCENTRATIONS ($\mu g/m^3$)* | NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ($\mu g/m^3$) |
|---|---|---|---|
| Carbon Monoxide (CO) | 8-hour max→ 167<br>1-hour max → 238 | 8-hr max.→ 1047<br>1-hr max.→ 1513 | 8-hr max.→ 10,000<br>1-hr max.→ 40,000 |
| Particulate Matter ($PM_{10}$) | 24-hr max → 14.6 | 24-hr max.→ 22 | 24-hr max.→ 150 |
| Particulate Matter ($PM_{2.5}$) | 24-hr max → 14.6<br>annual avg. → 2.9 | 24-hr max → 14<br>annual avg. → 6 | 24-hr max → 35<br>annual avg. → 9 |

*Background concentrations were obtained from Maryland air monitoring stations as follows:

CO, $PM_{10}$ and $PM_{2.5}$ → HU-Beltsville Monitoring Station in Prince George's County

**DRAFT PERMIT**

Wes Moore Serena McIlwain

# Air and Radiation Administration

1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

☒ Construction Permit ☐ Operating Permit

PERMIT NO.
033-0010-5-1720 through 5-1722 and 9-1687

PERMIT FEE:
5400.00

DATE ISSUED:

EXPIRATION DATE:
In accordance with COMAR 26.11.02.04B

**LEGAL OWNER & ADDRESS**
University of Maryland
College Park, MD 20742

Attention: Mr. Jason Baer

**SITE**
University of Maryland
College Park, MD 20742

AI # 16453

**SOURCE DESCRIPTION**

Permanent steam and power generating plant.

This source is subject to the conditions described on the attached pages.



Program Manager

Director, Air and Radiation Administration

## INDEX

Part A – General Provisions
Part B – Applicable Regulations
Part C – Construction Conditions
Part D1 thru D4 – Operating Conditions
Part E1 thru E3 – Notifications, Testing and Monitoring
Part F1 thru F4 – Record Keeping and Reporting

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This permit to construct covers the following registered installations:

| ARA Registration No. | Description | Installation Date |
|---|---|---|
| 033-0010-5-1720 | One (1) Rentech natural gas/ultra-low sulfur diesel fired boiler rated at 182.09 MMBtu/hr. equipped with an integrated burner capable of being turned down to 9.25 MMBtu/hr. (Pilot Mode), Zeeco low $NO_X$ burners and flue gas recirculation. | 2025 |
| 033-0010-5-1721 | One (1) Rentech natural gas/ultra-low sulfur diesel fired boiler rated at 182.09 MMBtu/hr. equipped with an integrated burner capable of being turned down to 9.25 MMBtu/hr. (Pilot Mode), Zeeco low Nox burners and flue gas recirculation. | 2025 |
| 033-0010-5-1722 | One (1) Solar Titan natural gas/ultra-low sulfur diesel fired 171.9 MMBtu/hr. [16.5 MWe - 23,470 hp] combustion turbine equipped with a heat recovery steam generator (HRSG) and supplemental Cleaver Brooks 92 MMBtu/hr. natural-gas fired duct burner. | 2025 |
| 033-0010-9-1687 | One Kohler (1) ultra-low sulfur diesel-fired emergency generator rated at 1,750 kWm (2,346 hp). | 2025 |

## Part A – General Provisions

(1) The following Air and Radiation Administration (ARA) permit-to-construct applications and supplemental information are incorporated into this permit by reference:

(a) Application for Processing or Manufacturing Equipment (Form 5) for two (2) Rentech natural gas/ultra-low sulfur diesel fired boilers each rated at 182.09 MMBtu/hr. and equipped with an integrated burner capable of being turned down to 9.25 MMBtu/hr. (Pilot Mode), Zeeco low $NO_X$ burners and flue gas recirculation received January 15, 2025.

(b) Application for Internal Combustion Engines (Form 44) for one (1) Solar Titan natural gas/ultra-low sulfur diesel fired 171.9 MMBtu/hr. [16.5 MWe - 23,470 hp] combustion turbine equipped with a heat recovery steam generator (HRSG) and supplemental Cleaver Brooks 92 MMBtu/hr natural-gas fired duct burner received January 15, 2025.

(c) Application for Emergency Generators (Form 42) for one (1) Kohler (1) ultra-low sulfur diesel-fired emergency generator rated at 1,750 kWm (2,346 hp) received January 15, 2025.

(d) Supplemental Information including an explanation of emissions and an electronic emissions spreadsheet received May 29, 2025.

If there are any conflicts between representations in this permit and representations in the applications, the representations in the permit shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

(2) Upon presentation of credentials, representatives of the Maryland Department of the Environment (“MDE” or the “Department”) and the Prince George’s County Health Department shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee’s property and permitted to:

(a) inspect any construction authorized by this permit;

(b) sample, as necessary to determine compliance with requirements of this permit, any materials stored or processed on-site, any waste materials, and any discharge into the environment;

(c) inspect any monitoring equipment required by this permit;

(d) review and copy any records, including all documents required to be maintained by this permit, relevant to a determination of compliance with requirements of this permit;

(e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this permit; and

(f) exercise its right of entry through use of an unmanned aircraft system to conduct inspections, collect samples, or make visual observations through photographic or video recordings to determine compliance with the requirements of this permit.

(3) The Permittee shall notify the Department prior to increasing quantities and/or changing the types of any materials referenced in the application or limited by this permit. If the Department determines that such increases or changes constitute a modification, the Permittee shall obtain a permit-to-construct prior to implementing the modification.

(4) Nothing in this permit authorizes the violation of any rule or regulation or the creation of a nuisance or air pollution.

(5) If any provision of this permit is declared by proper authority to be invalid, the remaining provisions of the permit shall remain in effect.

(6) This permit is issued in conjunction with all other valid issued permits to construct for ARA Premises No. 033-0010.

## Part B – Applicable Regulations

(1) This source is subject to all applicable federal air pollution control requirements including, but not limited to, the following:

(a) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in federal New Source Performance Standards (NSPS) promulgated under 40 CFR 60, Subparts A and **Db** for Industrial-Commercial-Institutional Steam Generating Units, **Subpart IIII** for Stationary Compression Ignition Internal Combustion Engines, and **Subpart KKKK** for Stationary Combustion Turbines.

(b) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) promulgated under 40 CFR 63, Subparts A and **ZZZZ** for Stationary Reciprocating Internal Combustion Engines.

All notifications required under 40 CFR 60, Subparts A, Db, IIII, and KKKK, and 40 CFR 63, Subparts A and ZZZZ, as applicable, shall be submitted to both of the following:

The Administrator
Compliance Program
Maryland Department of the Environment
Air and Radiation Administration
1800 Washington Boulevard, STE 715
Baltimore MD 21230

and

United States Environmental Protection Agency
Region III, Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch (3ED21)
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103-2852

(2) This source is subject to all applicable federally enforceable State air pollution control requirements including, but not limited to, the following regulations:

(a) COMAR 26.11.01.05 – 1, which requires that the Permittee submit an annual certification of emissions for volatile organic compounds (VOC) and nitrogen oxides ($NO_x$).

(b) COMAR 26.11.01.07C, which requires that the Permittee report to the Department occurrences of excess emissions.

(c) COMAR 26.11.02.04B, which states that a permit to construct or an approval expires if, as determined by the Department:

(i) Substantial construction or modification is not commenced within 18 months after the date of issuance of the permit or approval, unless the Department specifies a longer period in the permit or approval;

(ii) Construction or modification is substantially discontinued for a period of 18 months after the construction or modification has commenced; or

(iii) The source for which the permit or approval was issued is not completed within a reasonable period after the date of issuance of the permit or approval.

(d) COMAR 26.11.02.09A, which requires that the Permittee obtain a permit-to-construct if an installation is to be modified in a manner that would cause changes in the quantity, nature, or characteristics of emissions from the installation as referenced in this permit.

(e) COMAR 26.11.03.17, which requires the Permittee to apply for a significant modification to the Permittee's Title V – Part 70 Operating Permit.

(f) COMAR 26.11.06.12 which states that a person may not construct modify, or operate, or cause to be constructed, modified, or operated, a New Source Performance Standard (NSPS) source in a manner which results or will result in violation of the provisions of 40 CFR, Part 60.

(g) COMAR 26.11.09.05, which states that a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form.

Exceptions. Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty-minute period.

*For the emergency generator only*

(h) COMAR 26.11.09.05E, which limits visible emissions from the diesel engine to less than or equal to 10% and 40% opacity during idle and operating modes, respectively. Exceptions to these opacity limits are as follows:

(i) The 10% opacity limit during idle mode does not apply for a period of 2 consecutive minutes after a period of idling of 15 minutes for the purpose of clearing the exhaust system;

(ii) The 10% opacity limit during idle mode does not apply to emissions resulting directly from a cold engine start-up and warm-up for the following maximum periods:

(A) Engines that are idling continuously when not in service: 30 minutes;

(B) All other engines: 15 minutes.

(iii) The 10% and 40% opacity limits do not apply while maintenance, repair, or testing is being performed by qualified mechanics.

(i) COMAR 26.11.09.07A(2), which limits the sulfur content of distillate fuel oils to not more than 0.3 percent by weight.

Note: Compliance with the more stringent sulfur content requirements under 40 CFR 60, Subpart IIII demonstrates compliance with this requirement for the emergency generator.

(j) COMAR 26.11.09.08B(1)(c) and COMAR 26.11.09.08D(1)(b), which limit $NO_x$ emissions from the boilers and combustion turbine to the following in pounds of $NO_x$ per million btu of heat input:

| Fuel | Tangential-Fired | Wall-Fired |
|---|---|---|
| Gas only | 0.2 | 0.2 |
| Gas/Oil | 0.25 | 0.25 |

Note: Compliance with the more stringent requirements under 40 CFR 60, Subpart KKKK and Db demonstrates compliance with this requirement.

(k) COMAR 26.11.02.19C & D, which require that the Permittee submit to the Department annual certifications of emissions, and that the Permittee maintain sufficient records to support the emissions information presented in such submittals.

(3) This source is subject to all applicable State-only enforceable air pollution control requirements including, but not limited to, the following regulations:

COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

## Part C – Construction Conditions

(1) Except as otherwise provided in this part, the permanent steam and power generating equipment referred to as ARA Registration Nos. 033-0010-5-1720 thru 1722 and 033-0010-9-1687 shall be constructed in accordance with specifications included in the incorporated applications.

(2) The Permittee shall comply with the installation procedures specified in COMAR 26.11.01.11 for the continuous emissions monitoring systems (CEMS) for $NO_x$ for the two (2) Rentech boilers.

(3) Before installing the CEMS the Permittee must submit to the Department, for approval by the Department and EPA, a plan containing the CEMS design specifications, and proposed location. **[Reference: COMAR 26.11.01.11B(1)(a)]**

## Part D1 – General Operating Conditions

(1) Except as otherwise provided in this part, the permanent steam and power generating equipment referred to as ARA Registration Nos. 033-0010-5-1720 thru 1722 and 033-0010-9-1687 shall be operated in accordance with specifications included in the application and any operating procedures recommended by equipment vendors unless the Permittee obtains from the Department written authorization for alternative operating procedures.

(2) The Permittee shall properly maintain, calibrate, and operate all control panel instrumentation and all devices employed to monitor performance of the facility's air pollution control devices.

(3) To preclude applicability of Major Non-Attainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD) requirements, the Permittee shall limit 12-month total rolling emissions from the permanent steam and power generating equipment referred to as ARA Registration Nos. 033-0010-5-1720 thru 1722 and 033-0010-9-1687 to the following:

| Pollutant | Emissions Limit (tons per rolling 12-month period) |
|---|---|
| $NO_x$ | 111.6 |
| CO | 102.9 |
| $SO_2$ | 5.1 |
| VOC | 13.2 |
| PM | 13.1 |
| $PM_{10}$ | 13.9 |
| $PM_{2.5}$ | 13.9 |

(4) Prior to operating the permanent steam and power generating equipment referred to as ARA Registration Nos. 033-0010-5-1720 thru 1722 and 033-0010-9-1687, the Permittee shall submit an application to the Department for a significant modification to the Permittee's Title V – Part 70 Operating Permit.

## Part D2 – Operating and Monitoring Conditions for the Boilers

(1) The two (2) Rentech natural gas/ultra-low sulfur diesel fired boilers, each rated at 182.09 MMBtu/hr. shall burn primarily natural gas. Ultra-low sulfur diesel may be burned during periods of natural gas curtailment, gas supply interruption, start up, periodic testing, maintenance, or operator training. Periodic testing, maintenance, or operator training on ultra-low sulfur diesel shall not exceed a combined total of 48 hours per calendar year. Each boiler meets the definition of "gas-fired boiler" by complying with this requirement and are exempt from 40 CFR 63 Subpart JJJJJJ. **[Reference: 40 CFR §63.11195(e) and 40 CFR §63.11237]**

Note: Period of gas curtailment or supply interruption means a period of time during which the supply of gaseous fuel to an affected boiler is restricted or halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas due to normal market fluctuations not during periods of supplier delivery restriction does not constitute a period of natural gas curtailment or supply interruption. On-site gaseous fuel system emergencies or equipment failures qualify as periods of supply interruption when the emergency or failure is beyond the control of the facility.

(2) The Permittee shall operate the CEMS in accordance with the plan approved by the Department and EPA. **[Reference: COMAR 26.11.01.11B(1)(b)]**

(3) The CEMS shall be certified in accordance with 40 CFR Part 60, Appendix B. **[Reference: COMAR 26.11.09.08B(2)(b)]**

(4) Except as otherwise approved by the Department, if the owner or operator is unable to obtain emissions data from CEMS because of a malfunction of the CEMS for more than 2 hours in duration, the owner or operator shall use the alternative measurement method approved by the Department and EPA. **[Reference: COMAR 26.11.01.11B(4)]**

(5) A CEMS used to monitor a gas concentration shall meet the quality assurance criteria of 40 CFR Part 60, Appendix F, as amended, which is incorporated by reference.
**[Reference: COMAR 26.11.01.11C and COMAR 26.11.09.08B(2)(c)]**

(6) A CEMS required by this regulation is the primary method used by the Department to determine compliance or non-compliance with the applicable emission standards established in any permit or approval, administrative or court order, Certificate of Public Convenience and Necessity, or regulation in this subtitle. **[Reference: COMAR 26.11.01.11D(1) and COMAR 26.11.09.08B(2)(a)(i)]**

(7) A CEMS used to monitor a gas concentration shall record not less than four equally spaced data points per hour and automatically reduce data in terms of averaging times consistent with the applicable emission standard. **[Reference: COMAR 26.11.01.11D(2)]**

(8) The Permittee shall limit $NO_x$ emissions from each boiler to no more than 0.2 lb./MMBtu at all times, including periods of startup, shutdown, or malfunction. **[Reference: 40 CFR §60.44b]**

(9) The procedures under §60.13 shall be followed for installation, evaluation and operation of the continuous monitoring systems.
**[Reference: 40 CFR §60.48b(e)]**

(10) The CEMS shall be calibrated, maintained and operated to measure $NO_X$ emissions and $O_2$ (or $CO_2$) emissions discharged to the atmosphere, and shall record the output of the system. **[Reference: 40 CFR §60.48b(b)(1)]**

(11) The CEMS shall be operated and data recorded at all periods of operation except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.
**[Reference: 40 CFR §60.48b(c)]**

(12) 1-hour average $NO_X$ emissions rates measured by the CEMS shall be expressed in lb./MMBtu heat input and shall be used to calculate the average emission rates. The 1-hour averages shall be calculated using the data points required under §60.13(h)(2).
**[Reference: 40 CFR §60.48b(d)]**

(13) Except as otherwise established by the Department and approved by the EPA, Compliance with the $NO_X$ emission standard shall be determined as 30-day rolling averages. **[Reference: COMAR 26.11.09.08B(2)(d)]**

(14) The span values for $NO_X$ shall be determined in accordance with 40 CFR §60.48b(e)(2-3).

(15) When $NO_X$ emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emissions data will be obtained or estimated in accordance with the requirements of §60.48b(f).

(16) A person who owns or operates fuel-burning equipment with a capacity factor (as defined in 40 CFR Part 72.2) of 15 percent or less shall:

(a) Provide certification of the capacity factor of the equipment to the Department in writing;

(b) For fuel-burning equipment that operates more than 500 hours during a calendar year, perform a combustion analysis and optimize combustion at least once annually;

(c) Maintain the results of the combustion analysis at the site for at least 2 years and make these results available to the Department and the EPA upon request;

(d) Require each operator of an installation, except combustion turbines, to attend operator training programs at least once every 3 years, on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and

(e) Maintain a record of training program attendance for each operator at the site and make these records available to the Department upon request.

**[Reference: COMAR 26.11.09.08G(1)]**

(17) On and after the date of the initial performance test, the Permittee shall not caused to be discharged into the atmosphere any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. Opacity standards apply at all times, except during periods of startup, shutdown, or malfunction. **[Reference: 40 CFR §60.43b(f-g)]**

(18) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8, whichever date comes first, an owner or operator of an affected facility not located in a noncontinental area that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.30 weight percent sulfur, coke oven gas, a mixture of these fuels, or either fuel (or a mixture of these fuels) in combination with other fuels not subject to a PM standard in § 60.43b and not using a post-combustion technology (except a wet scrubber) to reduce $SO_2$ or PM emissions is not subject to the PM limits in (h)(1) of this section. **[Reference: 40 CFR §60.43b(h)(5)]**

(19) Units firing only very low sulfur oil, gaseous fuel, a mixture of these fuels, or a mixture of these fuels with any other fuels with a potential $SO_2$ emissions rate of 140 ng/J (0.32 lb./MMBtu) heat input or less are exempt from the $SO_2$ emissions limits in 40 CFR §60.42b(k)(1). **[Reference 40 CFR §60.42b(k)(2)]**

## Part D3 – Operating and Monitoring Conditions for the Emergency Generator

(1) The Permittee must use diesel fuel in the emergency engine that meets the requirements of 40 CFR §1090.305 for nonroad diesel fuel, i.e., diesel fuel that has a per-gallon sulfur content that does not exceed 15 ppm, and that either has a minimum per-gallon cetane index of 40 or a maximum per-gallon aromatic content of 35 volume percent. **[Reference: 40 CFR §60.4207(b)]**

Note: Compliance with this regulation also demonstrates compliance with COMAR 26.11.09.07A(2)(b).

(2) The engine shall be equipped with non-resettable hour meter. **[Reference: 40 CFR §60.4209(a)]**

(3) The engine shall be certified to the emissions standards in §60.4205(b), as applicable. The engine must be installed and configured according to the manufacturer's specifications. **[Reference: 40 CFR §60.4211(c)]**

(4) The Permittee must comply with the following emissions standards for the emergency engine:

(a) Non-methane Hydrocarbons and NOx (NMHC+$NO_X$): 6.4 grams per kilowatt-hour (g/kW-hr)
(b) Carbon Monoxide (CO): 3.5 g/kW-hr

(c) Particulate Matter (PM): 0.2 g/kW-hr
**[Reference: 40 CFR §60.4205(b), §60.4202(a)(2), §1039 Appendix I]**

(5) The exhaust opacity from the emergency engine shall not exceed:

(a) 20 percent during the acceleration mode;
(b) 15 percent during the lugging mode; and
(c) 50 percent during the peaks in either the acceleration or lugging modes.
**[Reference: 40 CFR §60.4205(b), §60.4202(a)(2), §1039.105]**

(6) The Permittee must operate and maintain the emergency engine that achieves the emissions standards as required by 40 CFR §60.4205 for emergency engines according to the manufacturer's emission-related written instructions over the entire life of the engine. In addition, the Permittee may only change those emission-related settings that are permitted by the manufacturer. The Permittee must also meet the requirements of 40 CFR Part 1068 as applicable.
**[Reference: 40 CFR §60.4206 and 40 CFR §60.4211(a)]**

(7) The following operating conditions apply to the emergency engine unless the Permittee applies for and obtains an approval from the Department to operate at other conditions:

(a) Any operation other than emergency operation, maintenance checks and readiness testing, and operation in non-emergency situations as described in paragraph (d), is prohibited.

(b) There is no time limit on the use of an emergency engine in emergency situations.

(c) The Permittee may operate each emergency engine for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, State or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that federal, State, or local standards require maintenance and testing of the emergency engine beyond 100 hours per calendar year.

(d) The Permittee may operate the emergency engine for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing. The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. **[Reference: 40 CFR §60.4211(f)]**

(8) The Permittee must meet the requirements of 40 CFR, Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR, Part 60, Subpart IIII for the emergency generator. No further requirements apply to the emergency generator under 40 CFR, Part 63, Subpart ZZZZ. **[Reference: 40 CFR §63.6590(c)]**

(9) A person who owns or operates fuel-burning equipment with a capacity factor (as defined in 40 CFR Part 72.2) of 15 percent or less shall:

(a) Provide certification of the capacity factor of the equipment to the Department in writing;
(b) For fuel-burning equipment that operates more than 500 hours during a calendar year, perform a combustion analysis and optimize combustion at least once annually;
(c) Maintain the results of the combustion analysis at the site for at least 2 years and make these results available to the Department and the EPA upon request;
(d) Require each operator of an installation, except combustion turbines, to attend operator training programs at least once every 3 years, on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and
(e) Maintain a record of training program attendance for each operator at the site and make these records available to the Department upon request. **[Reference: COMAR 26.11.09.08G(1)]**

## Part D4 – Operating and Monitoring Conditions for the Combustion Turbine

(1) The Permittee must operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction. **[Reference: 40 CFR §60.4333]**

(2) The one (1) Solar Titan natural gas/ultra-low sulfur diesel oil fired 171.9 MMBtu/hr. [16.5 MWe - 23,470 hp] combustion turbine equipped with a heat recovery steam generator (HRSG) and supplemental Cleaver Brooks 92 MMBtu/hr. natural-gas fired duct burner shall burn primarily natural gas. Ultra-low sulfur diesel may be burned during periods of natural gas curtailment or supply interruption, and for up to 48 hours per year for testing and tuning.

(3) The Permittee must not cause to be discharged into the atmosphere from the subject stationary combustion turbine **when firing natural gas** any gases which contain $NO_X$ in excess of 25 ppm at 15% $O_2$ or 150 nanograms per Joule (ng/J) (1.2 pounds per megawatt-hour (lb./MWh)) of useful output. **[Reference: 40 CFR §60.4325]**

Note: Compliance with this requirement demonstrates compliance with COMAR 26.11.09.08G(2).

(4) The Permittee must not cause to be discharged into the atmosphere from the subject stationary combustion turbine **when firing distillate oil** any gases which contain $NO_X$ in excess of 74 ppm at 15% $O_2$ or 460 nanograms per Joule (ng/J) (3.6 pounds per megawatt-hour (lb./MWh)) of useful output. **[Reference: 40 CFR §60.4325]**

Note: Compliance with this requirement demonstrates compliance with COMAR 26.11.09.08G(2).

(5) The Permittee must comply with (a) or (b):

(a) The Permittee must not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain $SO_2$ in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb./MWh)) gross output.
**[Reference: 40 CFR §60.4330(a)(1)]**

(b) The Permittee must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng $SO_2$/J (0.060 lb. $SO_2$/MMBtu) heat input. If your turbine simultaneously fires multiple fuels, each fuel must meet this requirement.
**[Reference: 40 CFR §60.4330(a)(2)]**

(6) The Permittee must perform annual performance tests in accordance with §60.4400 to demonstrate continuous compliance. If the NOx emission from the performance test is less than or equal to 75 percent of the $NO_X$ emission limit for the turbine, you may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the $NO_X$ emission limit for the turbine, you must resume annual performance tests.
**[Reference: 40 CFR §60.4340]**

(7) The Permittee must monitor the total sulfur content of the fuel being fired in the turbine, except as provided in §60.4365. The sulfur content of the fuel must be determined using total sulfur methods described in §60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17), which measure the major sulfur compounds, may be used.
**[Reference: 40 CFR §60.4360]**

(8) The Permittee may elect not to monitor the total sulfur content of the fuel combusted in the turbine if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng $SO_2$/J (0.060 lb. $SO_2$/MMBtu) heat input for units located in continental areas. The Permittee must use one of the sources of information outlined in §60.4365 (a) or (b).
**[Reference: 40 CFR §60.4365]**

(9) For the HRSG only: A person who owns or operates fuel-burning equipment with a rated heat input capacity of 100 Million Btu per hour or less shall:

(a) Submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each;
(b) Perform a combustion analysis for each installation at least once each year and optimize combustion based on the analysis;
(c) Maintain the results of the combustion analysis at the site for at least 2 years and make these results available to the Department and the EPA upon request;
(d) Require each operator of an installation to attend operator training programs at least once every 3 years, on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and

(e) Prepare and maintain a record of training program attendance for each operator at the site and make these records available to the Department upon request.
**[Reference: COMAR 26.11.09.08E]**

## Part E1 – General Notifications and Testing

The Permittee shall provide the Department with written or electronic notification, as follows for each registered installation covered by this permit:

(a) A notification of the date of construction/installation no later than 30 days after such date.

(b) A notification of the actual startup no later than 15 days after such date.

## Part E2 – Notifications and Testing for the Boilers

(1) The Permittee shall provide the Department with written or electronic notification for each boiler including:

(a) the design heat input capacity and identification of the fuels to be combusted; and

(b) the annual capacity factor at which the Permittee anticipates operating the facility based on all fuels fired and based on each individual fuel fired. **[Reference: 40 CFR §60.49b(a)]**

Note: This information may be submitted with the annual Emissions Certification Report submitted according to COMAR 26.11.02.19D.

(2) The Permittee shall in accordance with 40 CFR §60.8, conduct performance test(s) as follows:

(a) Within 60 days after achieving the maximum production rate at which the registered power and steam generating units will be operated, but not later than 180 days after initial startup, the Permittee shall conduct performance test(s) and furnish the Administrator (Department) with a written report of the results of such performance tests.

(b) Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart unless the Administrator specifies or approves, in specific cases, an alternative reference method.

(c) The Permittee shall provide the Department at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present. If after 30 days' notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Administrator (the Department) as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Administrator (the Department) by mutual agreement.

(d) The Permittee shall provide the Department with two copies of the test protocols at least 30 days prior to any scheduled performance tests.

(3) To determine compliance with the emission limits for $NO_X$ required under §60.44b, the owner or operator of an affected facility shall conduct the performance test as required under §60.8 using the continuous system for monitoring $NO_X$ under §60.48b(b).

(a) For the initial compliance test, $NO_X$ from the steam generating unit are monitored for 30 successive steam generating unit operating days and the 30-day average emission rate is used to determine compliance with the $NO_X$ emission standards under §60.44b. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

(b) Following the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that has a heat input capacity of 73 MW (250 MMBtu/hr.) or less and that combusts natural gas, distillate oil, gasified coal, or residual oil having a nitrogen content of 0.30 weight percent or less shall upon request determine compliance with the $NO_X$ standards in §60.44b through the use of a 30-day performance test.

During periods when performance tests are not requested, $NO_X$ emissions data collected pursuant to §60.48b(g)(1) or §60.48b(g)(2) are used to calculate a 30-day rolling average emission rate on a daily basis and used to prepare excess emission reports, but will not be used to determine compliance with the $NO_X$ emission standards. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly $NO_X$ emission data for the preceding 30 steam generating unit operating days.
**[Reference: 40 CFR §60.46b(e)(1) and (4)]**

(4) To determine compliance with the opacity limits under §60.43b, the Permittee shall conduct an initial Method 9 performance test within 180 days of initial startup as required under §60.8. **[Reference 40 CFR§ 60.46b(d)(7)]**

(5) The performance test may be reduced from 3 hours to 60 minutes if all 6-minute averages are less than 10 percent and individual 15-second observations are less than or equal to 20 percent during the initial 60 minutes of observation. **[Reference 40 CFR§ 60.48b(a)]**

(6) Subsequent Method 9 should be performed in accordance with paragraphs (a)(1), (a)(2), or (a)(3) of § 60.48b. **[Reference: 40 CFR §60.48b(a)]**

(7) The Permittee only combusts very low sulfur oil, natural gas, or a mixture of these fuels with any other fuels not subject to an SO2 standard is not subject to the compliance and performance testing requirements of 40 CFR § 60.45b if the Permittee obtains fuel receipts as described in §60.49b(r). **[Reference: 40 CFR §60.45b(j)]**

## Part E3 – Notification and Testing for the Combustion Turbine

(1) The Permittee shall in accordance with 40 CFR §60.8, conduct performance test(s) as follows:

(a) Within 60 days after achieving the maximum production rate at which the registered power and steam generating units will be operated, but not later than 180 days after initial startup, the Permittee shall conduct performance test(s) and furnish the Administrator (Department) with a written report of the results of such performance tests.

(b) Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart unless the Administrator specifies or approves, in specific cases, an alternative reference method.

(c) The Permittee shall provide the Department at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present. If after 30 days' notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Administrator (the Department) as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Administrator (the Department) by mutual agreement.

(d) The Permittee shall provide the Department with two copies of the test protocols at least 30 days prior to any scheduled performance tests.

(2) The Permittee shall conduct subsequent $NO_x$ and $SO_X$ performance tests on an annual basis (no more than 14 calendar months following the previous performance test). If the $NO_x$ emission result from the previous $NO_x$ performance test is less than or equal to 75 percent of the $NO_x$ emission limit for the turbine, the Permittee may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent $NO_x$ performance test exceed 75 percent of the $NO_x$ emission limit for the turbine, you must resume annual $NO_x$ performance tests. **[Reference: 40 CFR §60.4340(a)]**

(3) The Permittee shall conduct the performance test in accordance with the methodologies in §60.4400(a) and §60.4415(a). Compliance with this requirement also demonstrates compliance with COMAR 26.11.09.08B(2)(a)(ii).

(4) The $NO_x$ performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. The Permittee may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. The Permittee must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes.

(a) If the stationary combustion turbine combusts both oil and gas as primary or backup fuels, separate performance testing is required for each fuel.

(b) For a combined cycle and CHP turbine systems with supplemental heat (duct burner), you must measure the total $NO_X$ emissions after the duct burner rather than directly after the turbine. The duct burner must be in operation during the performance test.

(c) Compliance with the applicable emission limit in §60.4320 must be demonstrated at each tested load level. Compliance is achieved if the three-run arithmetic average $NO_X$ emission rate at each tested level meets the applicable emission limit in §60.4320.

(d) The ambient temperature must be greater than 0 °F during the performance test.

**[Reference: 40 CFR §60.4400(b)]**

(5) Compliance shall be determined as averages of the stack test duration.
**[Reference: COMAR 26.11.09.08B(2)(e)]**

(6) The Permittee shall sample the NOx emissions after any maintenance swap out or replacement of turbine drives including rebuilds, replacements of shafts, turbine impellers, casings, liners, etc. Once installed, the replacement/rebuilt combustion turbines exhaust shall be tested for NOx emissions by calibrated handheld analyzer twice per operating day, such that readings occur approximately 12 hours apart. Reading shall take place for a minimum of 7 operating days and with the combustion turbine operating at a minimum of 90% of its capacity. Records of the sampling results shall be maintained on site and made available to the Department upon request.

## Part F1 – Record Keeping and Reporting for the Boilers

(1) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request records of the following information:

(a) Records of amounts of each fuel combusted during each day;

(b) Calculate the annual capacity factor individually for distillate oil and natural gas. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month;

(c) Performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in Appendix B of 40 CFR Part 60;

(d) Results of performance tests; and

(e) For each boiler operating day:

i. Calendar date;
ii. The average hourly $NO_X$ emissions rates (expressed as $NO_2$) (lb./MMBtu heat input) measured or predicted;
iii. The 30-day average $NO_X$ emissions rates (lb./MMBtu heat input) calculated at the end of each boiler operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 boiler operating days;
iv. Identification of the boiler operating days when the calculated 30-day average $NO_X$ emission rates are in excess of the $NO_X$ emissions standards under §60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken;
v. Identification of the boiler operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
vi. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
vii. Identification of “F” factor used for calculations, method of determination, and type of fuel combusted;
viii. Identification of the times when the pollutant concentration exceeded full span of the CEMS;
ix. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and
x. Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.

**[Reference: 40 CFR §60.49b(d)(1) and 40 CFR §60.49b(g)]**

(2) The Permittee shall submit reports containing the information recorded under (1)(e) of this Part.
**[Reference: 40 CFR §60.49b(i)]**

(3) The Permittee shall submit excess emissions reports for any excess emissions that occurred during the reporting period. Excess emissions are defined as any calculated 30-day rolling average NOx emission rate that exceeds the applicable emission limit in §60.44b.
**[Reference: 40 CFR §60.49b(h)]**

(4) All CEM system downtime that lasts or is expected to last more than 24 hours shall be reported to the Department by telephone before 10 a.m. of the first regular business day following the breakdown. **[Reference: COMAR 26.11.01.11E(1)(a)]**

(5) The system breakdown report required above shall include the reason, if known, for the breakdown and the estimated period of time that the CEMS will be down. The owner or operator of the CEMS shall notify the Department by telephone when an out-of-service CEMS is back in operation and producing data that has met performance specifications for accuracy, reliability, and durability of acceptable monitoring systems, as provided in COMAR 26.11.31, and is producing data.
**[Reference: COMAR 26.11.01.11E(1)(b)]**

(6) All test results shall be reported in a format approved by the Department. Certification testing shall be repeated when the Department determines that the CEMS data may not meet performance specifications because of component replacement or other conditions that affect the quality of generated data.
**[Reference: COMAR 26.11.01.11E(2)(a-b)]**

(7) When demonstration of compliance with the NOx emission standards in this regulation is based on CEMS data, quarterly emission reports shall be submitted to the Department on or before the thirtieth day of the month following the end of each calendar quarter. **[Reference: COMAR 26.11.09.08K(1)]**

(8) A quarterly summary report shall be submitted to the Department not later than 30 days following each calendar quarter. The report shall be in a format approved by the Department, and shall include the following:

(a) The cause, time periods, and magnitude of all emissions which exceed the applicable emission standards;

(b) The source downtime including the time and date of the beginning and end of each downtime period and whether the source downtime was planned or unplanned;

(c) The time periods and cause of all CEMS downtime including records of any repairs, adjustments, or maintenance that may affect the ability of the CEMS to meet performance specifications of emission data;

(d) Quarterly totals of excess emissions, installation downtime, and CEMS downtime during the calendar quarter;

(e) Quarterly quality assurance activities;

(f) Daily calibration activities that include reference values, actual values, absolute or percent of span differences, and drift status; and

(g) Other information required by the Department that is determined to be necessary to evaluate the data, to ensure that compliance is achieved, or to determine the applicability of this regulation.

**[Reference: COMAR 26.11.01.11E(2)(c)]**

(9) The Permittee shall maintain records of opacity in accordance with paragraphs (f)(1) through (2) of 40 CFR §60.49b(f) as applicable to the visible emissions monitoring method used.

(10) The Permittee shall meet the requirements for fuel-based compliance of 40 CFR §60.49b(r)(1) or 40 CFR §60.49b(r)(2).

## Part F2 – Record Keeping and Reporting for the Emergency Generator

(1) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request records of the following information:

(a) Records of the hours of operation for the emergency engine that are recorded through the non-resettable hour meter. The Permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency, and how many hours are spent for non-emergency operation; and

(b) Certification records from fuel oil suppliers indicating the name of the oil supplier, a statement from the oil supplier that the oil complies with the specifications under the definition of diesel fuel in 40 CFR §60.4219, and the sulfur content of the oil.

## Part F3 – Record Keeping and Reporting for the Combustion Turbine

(1) For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, the Permittee must submit reports of excess emissions and monitor downtime, in accordance with §60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction.
**[Reference: 40 CFR §60.4375]**

(2) For each affected unit that performs annual performance tests in accordance with §60.4340(a), the Permittee must submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test.
**[Reference: 40 CFR §60.4375]**

(3) All reports must be postmarked by the 30$^{th}$ day following the end of each 6-month period.
**[Reference: 40 CFR §60.4395]**

(4) Results of stack tests shall be submitted to the Department within 45 days after completion of the test. **[Reference: COMAR 26.11.09.08K(2)]**

(5) The Permittee shall keep records of any maintenance swap out or replacement of turbine drives including rebuilds, replacements of shafts, turbine impellers, casings, liners, etc. Records shall also include the serial number(s) for the turbine casing, shaft, combustion line and/or transition to be installed.

(6) The Permittee shall notify the Department one week prior to any turbine maintenance swap out or replacement. Prior notification is not required for general maintenance or repairs, including replacement of turbine shafts, impellers, liners, etc. Notification shall include the reason for replacement, i.e., turbine failure, etc. Notification shall also include the serial number(s) of the turbine casing, shaft, combustion liner and/or transition to be installed.

(7) The Permittee shall provide the Department with the results of $NO_x$ sampling, which is required after any rebuild, maintenance swap out or replacement of a turbine. The results shall be submitted within 14 days after the sampling.

## Part F4 – General Record Keeping and Reporting

(1) The Permittee shall maintain at the facility for at least five (5) years, and shall make available to the Department upon request, records necessary to support annual certifications of emissions and demonstrations of compliance for toxic air pollutants. Such records shall include, if applicable, the following:

(a) mass emissions rates for each regulated pollutant, and the total mass emissions rate for all regulated pollutants for each registered source of emissions;

(b) accounts of the methods and assumptions used to quantify emissions;

(c) all operating data, including operating schedules and production data, that were used in determinations of emissions;

(d) amounts, types, and analyses of all fuels used;

(e) any records, the maintenance of which is required by this permit or by State or federal regulations, that pertain to the operation and maintenance of continuous emissions monitors, including:

(i) all emissions data generated by such monitors;

(ii) all monitor calibration data;

(iii) information regarding the percentage of time each monitor was available for service; and

(iv) information concerning any equipment malfunctions.

(f) information concerning operation, maintenance, and performance of air pollution control equipment and compliance monitoring equipment, including:

(i) identifications and descriptions of all such equipment;

(ii) operating schedules for each item of such equipment;

(iii) accounts of any significant maintenance performed;

(iv) accounts of all malfunctions and outages; and

(v) accounts of any episodes of reduced efficiency.

(g) limitations on source operation or any work practice standards that significantly affect emissions; and

(h) other relevant information as required by the Department.

(2) The Permittee shall submit to the Department by April 1 of each year a certification of emissions for the previous calendar year. The certifications shall be prepared in accordance with requirements, as applicable, adopted under COMAR 26.11.01.05 – 1 and COMAR 26.11.02.19D.

(a) Certifications of emissions shall be submitted on forms obtained from the Department.

(b) A certification of emissions shall include mass emissions rates for each regulated pollutant, and the total mass emissions rate for all regulated pollutants for each of the facility's registered sources of emissions.

(c) The person responsible for a certification of emissions shall certify the submittal to the Department in the following manner:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

(3) The Permittee shall submit to the Department by April 1 of each year a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. Such analysis shall include either:

(a) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or

(b) a revised compliance demonstration, developed in accordance with requirements included under COMAR 26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

(4) For the permanent steam and power generating equipment referred to as ARA Registration Nos. 033-0010-5-1720 thru 1722 and 033-0010-9-1687, the Permittee shall maintain records of the monthly and rolling 12-month totals of emissions of NOx, CO, VOC, SOx, PM, PM-10, and PM-2.5 and all supporting information necessary for the emissions calculations.

(5) The Permittee shall report to the Department if rolling 12-month emissions totals exceed any of the limits in Part D1 (8) of this permit within 30 days following the month of occurrence.

(6) The Permittee shall maintain annual fuel use records on site and make these records available to the Department upon request. **[Reference: COMAR 26.11.09.08K(3)]**

(7) All information required by this regulation to be reported to the Department shall be retained and made available for review by the Department for a minimum of 5 years from the time the report is submitted.

(8) The Permittee shall report, in accordance with requirements under COMAR 26.11.01.07, occurrences of excess emissions to the Compliance Program of the Air and Radiation Administration. **[Reference: COMAR 26.11.01.07C and D]**

The Permittee shall report by telephone to (410) 537-3215 and by email to mdeair.othercompliance@maryland.gov

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

## AIR AND RADIATION ADMINISTRATION

## SUPPLEMENTAL INFORMATION REFERENCES

The Code of Maryland Regulations (COMAR) is searchable by COMAR citation at the following Division of State Documents website:
https://dsd.maryland.gov/Pages/default.aspx

The Code of Federal Regulations (CFR), including New Source Performance Standards (NSPS) at 40 CFR, Part 60 and National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR, Parts 61 and 63, is searchable by CFR citation at the following U.S. Government Publishing Office website:
http://www.ecfr.gov

Information on National Ambient Air Quality Standards (NAAQS) is located at the following U.S. Environmental Protection Agency (EPA) website:
https://www.epa.gov/criteria-air-pollutants/naaqs-table

Information on Maryland's Ambient Air Monitoring Program is located at the following Maryland Department of the Environment website:
http://mde.maryland.gov/programs/Air/AirQualityMonitoring/Pages/index.aspx

Information on the U.S. EPA's Screen3 computer model and other EPA-approved air dispersion models is located at the following U.S. EPA website:
https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models

Information on the U.S. EPA TANKS Emission Estimation Software is located at the following U.S. EPA website:
https://www.epa.gov/air-emissions-factors-and-quantification/tanks-emissions-estimation-software-version-5

Information on the U.S. EPA Emission Factors and AP-42 is located at the following U.S. EPA website:
https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

**AIR AND RADIATION ADMINISTRATION**

**Privilege Log**

The following confidential business information has been withheld from the public copy of the permit application:

- Certain emissions calculations and supporting data
- Workers' Compensation account information
- Manufacturer/vendor specifications for equipment to be installed